Industrial FINISHING

Reg. U. S. Pat. Office

Devoted to Product Finishing in the Factory

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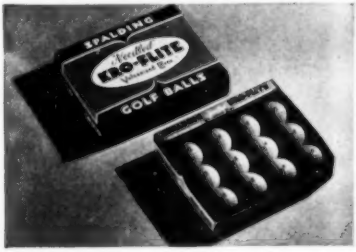

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Letters from Readers of "Industrial Finishing"

Editor's Note — These letters have been promptly answered and all of the inquiries have been referred to advertisers in the magazine. They are published here to indicate or suggest certain interesting trends of thought and activity in the industry, and to encourage further inquiries, comments and suggestions. The names and addresses of firms or individuals whose letters are published here may be had by writing to this office, or letters addressed to them in care of this office will be forwarded immediately.

Bleached Blondes

I am informed that in the May, 1934, issue there was an article about a bleach for blonde finishes. I would appreciate very much getting hold of this article, or any other information you may have pertaining to bleaches, as I have a number of customers who are interested in bleaches at this time and they are constantly taking this matter up with me.—G. W. D. (With Mfr. of Finish Materials).

Several manufacturers are offering excellent materials for producing bleached or blonde finishes.—EDITOR.

Bleaching and Antique Finishing

Two problems have recently confronted me in which I would appreciate any help you may be able to give me. One is how to bleach walnut, mahogany and such dark woods to a real white without raising or harming the grain. The other is the solution used in a process of aging pine, maple, Italian walnut or practically any other wood for the making of antique reproductions. In this process, the wood is first sponged with said solution and then placed in a tight room in which corn cobs are burned. In a few hours the wood is turned to a very beautiful old color, giving the effect of a real old patina.

If you have any books on the refinishing of antiques or the reproducing of old finishes, I would like a list of such. Also, I would like to have a list of your books on general finishing problems.—N. T. M.

Bar Top Finish

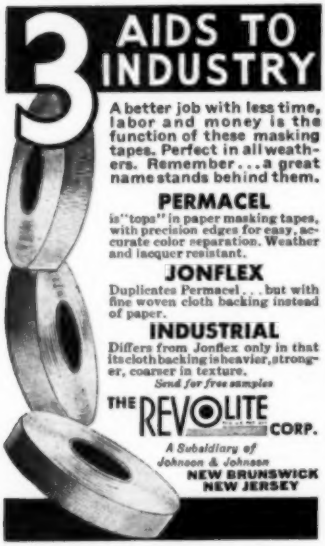
Since the Repeal of Prohibition we have gone quite extensively into the manufacture of bar fixtures. In the beginning we used various so-called "bar top varnishes" made by different manufacturers, but in each case we have had more or less trouble with that type of finish for bar tops. In recent months we have had several requests for oil-finished bar tops. If you have formulas for this type of finish and directions for its application, will you please be kind enough to forward the same to us? — A. T. Mfg. Co. (Fine Cabinet Work).

Machine Tool Gray

Would you kindly send us, if possible, a sample color of gray enamel adopted as a standard by the Machine Tool Manufacturers in their convention at Cleveland?—R. B. E. (With Mfr. of Finish Materials).

Heat-Proof Finish

Will you kindly furnish us with the full name and address of "H. K. N. Co." listed in the June issue of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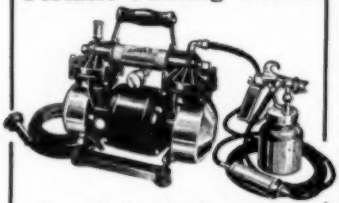

Crown Airflo outfits have ample capacity to handle lacquer, synthetics and all modern finishes with speed, economy and satisfaction. Compressors operate without oil, insuring CLEAN air at all times—fewer moving parts—blower-cooled G-E motor . . extremely portable. Greater pressure and volume per motor horsepower guaranteed. Send for details.

Crown Spray Gun Mfg. Co.
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Warehouses in Principal Cities

INDUSTRIAL FINISHING (page 60) who are interested in a heat-proof finish? We have something which we believe would meet the requirements outlined.—Hilo Varnish Corp.

(To H. K. N. Co., whose letter on the above subject appeared in June issue, page 60.)

We noticed your letter in the June issue of INDUSTRIAL FINISHING regarding "Heat Proof Finish." We are manufacturers of a patented process of metal surfacing known as "Cladite," a metallic liquid applied cold with either spray, brush or dip method, and heat-treated to 500°F. for metallization. Our material will withstand a very high temperature without distortion, peel, discoloration, etc. It is made in the following metals and colors: Aluminum, bronze, zinc, monel, stainless steel, etc.

To show you just what it is, we are enclosing a small panel of No. 31 gage steel coated with aluminum. Bend it over itself and restraighten; apply acetone; dip in a copper sulphate solution; test in 21% solution of oil of vitriol; heat up to 1000°F. Our material is sold ready for use in 5-gallon cans. If interested, send a few samples and we will coat and return for your further tests and approval, without charge.—CLADITE INC.

Luminous Paint

Will you please refer "L. F. J." (who asks about a luminous paint) in your February issue to us? We are in a position to furnish a luminous paint which we have just developed. We believe it is a decided improvement over any on the market at the present time.—The Columbus Varnish Co.

Small Glass Beads

Kindly give us a source of supply for small round glass beads or clear glass pearls, which are about the size of the head of a pin. These have been used for luminous signs by simply embedding them in the lacquer surface before it is dry.—S. R. Co. (Artistic Wood Products).

Reflector Buttons

Are you in position to give us names of makers of reflector buttons for road signs. We have been receiving from time to time INDUSTRIAL FINISHING magazine, but we

do not find anything mentioned in there regarding same. Any information you can give us will be appreciated. — B. W. Co. (Manufacturers, Distributors).

Concrete Floor Paint

Having read your magazine, I would like to have some information if it is possible. I would like to know who makes a concrete paint or treatment for floors, which will stand up under hard usage and withstand acid and alkali. I hope you can give me some information or tell me of a vehicle that can be mixed with a pigment that will do the work.—T. R. E. (With Paint Mfr.).

Small Paint Mixer

We are desirous of obtaining information as to where we might purchase a small table mixer for mixing lacquers, etc., capable of various speeds, to be operated on direct current, 110 volts. Further, we would desire this mixer capable of a gallon capacity, on down. We know of several mixers, but they are not made with a universal motor; they are only operated on alternating current, whereas we need the direct current.—C. V. Co. (Finish Mfrs.).

Golf Ball Painting

I am enclosing a clipping from March INDUSTRIAL FINISHING. I am seeking exactly the same information, namely advice on golf ball repainting. I wish to reproduce a factory finish and would like to know what equipment, material and method to use. If you can advise me concerning this, or refer me to the proper source, I will appreciate your courtesy and consideration.—G. L. P.

Petroleum Solvents

(To Mr. G. L. Hardy, author of "Petroleum Diluents and Solvents," July issue, pages 37 and 38.)

Your article, appearing in the July number of INDUSTRIAL FINISHING on the subject "Petroleum Diluents & Solvents," is very interesting to me as we are using substantial quantities of synthetic vehicles in grinding and mixing our metal

(Continued on page 60)

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The Newest Furniture

by Edw. F. Huffman

Highlights of the latest and most popular style trends, designs, finishes, woods and colors that appeared in representative exhibits of furniture concerns at the American Furniture Mart in Chicago, during the Summer Market, July 6th to 18th.

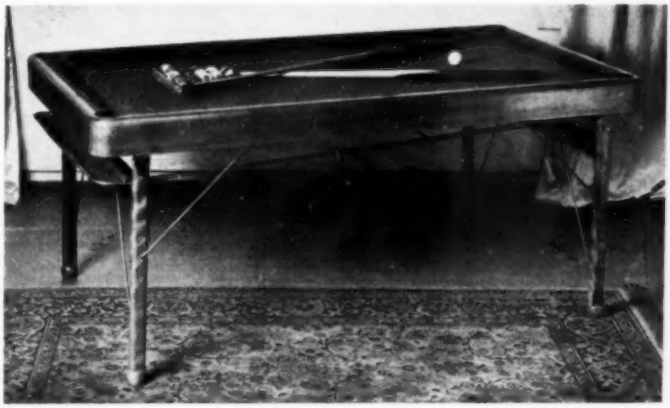
CLOSE INSPECTION of about 700 displays showing not only furniture but other types of home furnishings such as electrical appliances, toys and juvenile furniture, at the American Furniture Mart in Chicago, revealed the latest offerings of representative leading companies in an industry, or rather a group of industries, that is doing a business of about $2,000,000,000 annually, which compares favorably with the automotive industry's more than $3,000,000,000 worth of business per year.

Illustration above shows a colonial refectory table—part of dinette set—in solid maple, finished in a New American maple finish recently developed. A design by Lester Wuenn for The Dearborn Co., Chicago, Ill.

What we designate as "Modern" leads the style trend, with 18th Century second in popularity. In the woods used, American walnut continues in the lead, with mahogany second. Electric ranges and refrigerators appear chiefly in white enamel.

Bedroom Suites

Modern styles appeared in several pastel colored and blonde



at the Mid-Summer Show

finished suites . . . . besides the clear lacquer used on American walnut veneer. Beds, dressers, vanities, chests and benches were seen with rounded edges and corners, and with chamfered instead of right-angle corners on the tops of the cases; with domestic rotary and sliced veneers together with striped Oriental wood veneers on drawer fronts of the same cases; finished in clear lacquer and rubbed to a semi-gloss sheen. Most of the case goods in these modern bedroom suites had polished metal pulls placed conveniently on the fronts of drawers. Occasionally, on some of the modern cases, a polished metal band was inlaid flush between the two top drawers, the band extending across the front and back along both ends.

Large square blocks of alternate rotary and sliced walnut veneers in natural dark and light colors were used on head and foot boards on some modern style beds—a variation from the usual treatment.

In unstyled and commercial suites, which ranked third in popularity, a patented stencil ornamentation was used, wherein apparently a large inlaid medallion of expensive and attractive wood was set off inside a border of figured wood bleached lighter than the larger surrounding areas.

Natural harewood bedroom suites were shown in the Modern style, with clear lacquer used to bring out the natural pastel tone

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Illustration on this page shows a fine example of new home recreational furniture—a folding pool table in streamlined round-corner design; woodwork, maple finished natural; purple billiard cloth. A product of The Burrowes Corp., Portland, Me.

prevalent in harewood. The finish was rubbed to a semi-gloss luster. Parallel stripings in ebony extended around the bases and feet of the case goods and beds of some harewood numbers, making an attractive and effective decoration.

Modern styles of bedroom furniture were shown in solid rock maple and birch finished with clear lacquer in the regular maple color and then rubbed to a satiny smooth surface. Early English and Early American bedroom suites were also shown in rock maple (copies of old pieces, the true Colonial atmosphere being adopted) with shaped lengths of the same wood mounted on door fronts of cases for convenient pulls, and finished the same as the suites.

Dining Room Furniture

More dining room furniture was shown at this market than in January. Modern styles lead, followed by the styles of the 18th Century, with walnut predominating — but with a generous showing of mahogany with crotch and swirl figure on the fronts of cases. In most of the spaces 10-piece suites were shown.

Although the relative standing of oak was low, according to the popularity of woods shown, oak was brought out in the Rennaissance designs of the 17th Century, that is Elizabethian and Jacobean. Here were 9-piece and 10-piece suites in graceful designs with soft dark brown finishes.

Styles of the 18th Century (Chippendale, Sheraton and Hepplewhite) were responsible for increasing the percentage of mahogany used by various manufacturers. Mahogany in dining room suites of these styles ranged from the simple straight striped mahogany veneer on the tops of cases and tables, to the beautifully figured crotch and swirl mahogany veneer faces on the fronts of cases. The wood was finished in a rich golden brown and rubbed to a mellow semi-gloss luster.

Modern style walnut dining room furniture in 9-piece and 10-piece suites showed figured veneers used in the same manner as mahogany in the 18th Century numbers; that is, rotary and sliced veneers were used on the tops of cases and tables, while the crotch and stump walnut veneers were used on the fronts of cases . . . . all finished in such a manner as to bring out the natural rich color of walnut.

One fine looking suite of dining room furniture was what you might call a modernized Colonial design made of solid rock and maple and birch, with scuffed smooth worn edges, finished in the naturally-aged satiny mellow maple and rubbed smooth.

Living Room and Novelty

Here were exhibited modern 3-piece suites (davenport and two easy chairs) and sectional pieces that could be used separately or placed together in one unit (sofa or settee) . . . . in crushed mohair, curley mohair, novelty weave mohairs and tapestries, but without any wood arms, rails or decorations on the pieces. A few spaces showed French and English divans, settees, love-seats, sofas and chairs upholstered in imported tapestries, brocatelles, damasks and satines. The frames were hand-carved and finished in

a manner typical of the period—painted and gilded.

Occasional and pull-up chairs were upholstered mostly in blue or brown tapestry, with a striped effect for contrast. The arms and legs of these chairs were in Modern and Colonial designs. Walnut was used in several 18th Century pieces, with their gently curved "bamboo-turned" legs and shaped arms finished in clear lacquer. On a few of the Modern numbers, the maple arms and legs had a blonde finish produced by bleaching. One space showed what is called a rockerless rocker, upholstered in a brown striped tapestry.

In the Colonial designs there were 2-armchairs and chairs with right and left arms, together with a center chair in a maple base. These latter mentioned chairs could be used with end armtables, or combined to fit most any condition. The rock maple arms and bases of these Colonial upholstered chairs were finished in the regular maple finish and hand rubbed to a satiny smooth finish.

Knee-hole desks in Colonial and 18th Century designs were finished mostly in walnut. Some mahogany and blonde finishes were shown. Tables of many kinds (cocktail, coffee, end, lamp and radio) were styled in the modern streamline and finished in clear lacquer to bring out the natural walnut color. These latter pieces were also shown in mahogany finished a golden brown. A few spaces showed blonde finishes rubbed to a semi-gloss satiny surface.

New in the American Furniture Mart are toys . . . . children's organs with benches to match, finished in walnut and maple in the regular manner to bring out the natural beauty of the wood. Much of the juvenile goods appeared in enamel finishes —light colors with hand painted, striped or stenciled decorations in bright contrasting colors.

Breakfast Room and Kitchen

No great change is evident in commercial breakfast and dinette sets. Oak still leads in the construction of tables and chairs for these sets, with a few manufacturers adding kitchen cabinets, servers and "chinas" in oak to match. The leading color finishes in lacquer are: Oyster-white, brown, and green oak. These are alcohol resistant and tested to stand hard service. One space showed a walnut dinette set, and another displayed a Modern pattern in harewood.

On kitchen cabinets, bases and units, white synthetic enamel seems to be gaining over green, ivory, and grey in popularity. White matches the ranges, refrigerators and sinks. A few Modern cabinets and units were exhibited at this market, and again white enamel was outstanding as the standard finish, equipped with stainproof porcelain tops on the cabinets.

Porch and Garden

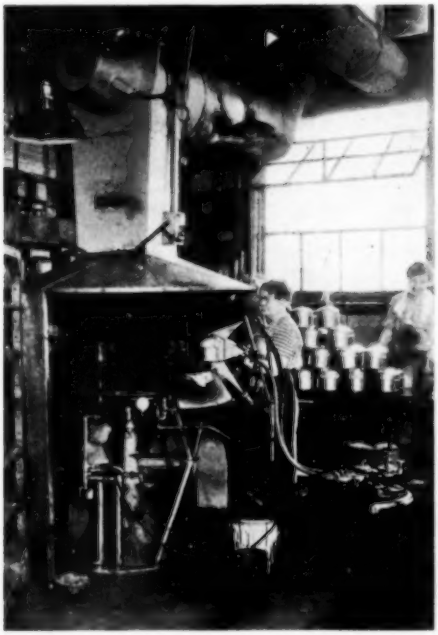
Stainless steel groups were added among the chromium numbers this season . . . . modern tubular streamlines similar to chromium furniture; stainless and rustproof; very practical for outdoors.

One space showed modern bentwood frames with streamlines like chromium furniture, but lighter in weight and adaptable

for use inside the home. These stainless steel, chromium and bentwood numbers are mostly upholstered in leatherette cushions and backs, generally in grained effects of maroon, oyster-white, blue or yellow. Blonde finishes on solid maple bentwood frames were displayed in some spaces.

Automatic Spraying

THE accompanying illustration shows a view in the acoustical division of the Burgess Battery Company's plant at Madison, Wis., where a 3-gun automatic air-coating installation is in service spraying lacquer over the outsides of air filters for automobile carburetors.



As will be seen, a motor-driven ball-bearing steel turntable unit is used to carry the air filters past the battery of spray guns, which are mounted on an oscillating mechanism, permitting the guns to follow each piece as it passes through the coating station, keeping the spray centered accurately upon the filter and preventing over-spray and waste. All three guns are controlled by an automatic off-and-on control, operated by a cam to start the spraying immediately as each piece on the turntable comes within range, and automatically shutting off as the lacquered piece passes out of the controlled area.

Note especially the dress of the woman operator. It will be seen that she wears only an ordinary apron over her house dress — no protection whatever for face, arms or hair, clearly indicating that the efficient fireproof exhaust ventilating unit provided for this equipment relieves all necessity for any other protection.

The unit illustrated in the accompanying picture comprises only one of a battery of four similar units which were built and installed in the Madison plant of the Burgess Battery Co. — PAASCHE AIRBRUSH CO.

Photographic Method of Making Silk Screen Stencils

by
Harry L. Hill

This timely article supplies more specific information about Silk Screen Printing on Textiles, treated in a question and answer published in July issue. It deals only with preparing a sensitized screen for doing high class work on textiles and other surfaces.

The making of screen frames, stretching the silk, blocking out simple designs, etc., were taken up by the author in May and June issues of this magazine.

AMONG the several methods of making positives for photographic silk screens, there are the photo-engraver's wet plate positive on glass, and the more recent celluloid positive. Both are absolutely lightproof when photographed from good contrasty black and white line drawings. Glass positives are the fastest to light and are more desirable when the positives are not exactly 100% opaque. The celluloid film or positive has become popular because it is not fragile like glass and is more easily filed away for future use.

To get a positive of the object to be printed it is necessary that the drawing be made with a strictly opaque snow white ink or water color on a jet black background. This eliminates the necessity of making a negative, which is required if the object to be printed or screened is drawn with black ink on white paper.

Halftone prints up to 50 lines to the inch can also be made from a photograph of the object to be printed. The photo-engraver makes his halftone wet plate or celluloid positive directly from the photograph. He can also retouch the photograph so as to avoid having the shadows too dark. If the shadows on the photograph are too dark, the dots in the reproduced halftone will be so close together that they will appear to be a black mass of color when printing, thereby often destroying much of the needed detail in making a clear silk-screen print.

Another good method of making a positive is to work with photographers' retouching opaque on celluloid or clear tracing paper. If paper is used it must first be sprayed with a thin uni-

form film of lacquer to make it waterproof and more transparent. When the lacquer is dry, rub it with a wad of cotton and fine dry powdered pumice stone to dull its sheen, thereby giving an excellent drawing surface. Without a lacquer coating the paper would be useless for drawing with either waterproof ink or photographers' opaque, as both contain some water.

Sheet celluloid .005-in. thick gives a better positive than lacquer-coated paper. Celluloid must also be rubbed with cotton and pumice stone (it will require considerable rubbing) to remove all gloss; otherwise it will be difficult to draw on, especially with water colors.

Black ink is not the best for drawing the positive. Opaque orange or red is more resistant to light.

When not using opaque, in making a positive drawing, black japan color can be used. Cut the japan color to brushing consistency with a mixture of turpentine, linseed oil and a little slow-drying varnish. Be sure to slow up the drying of the japan color so that when the drawing is completed it will not be dry but will be tacky like varnish or sizing for gold leaf. Now sprinkle fine bronze or aluminum powder all over the drawing and let it stand until perfectly dry. Then dust off all excess aluminum or bronze with a piece of cotton. Dust lightly at first to make sure that all powder is off the background of the drawing. Finally, rub with cotton, using considerable pressure, to give the design a slight burnished or gloss effect. The slight gloss or burnish proves that all loose particles of powder have been removed. No positive can be more opaque than one done in "dusted bronze." The detail will be just as sharp as the drawing if a fine powder is used.

In screening printed matter, when an ordinary style of type is used, have a printer pull a proof on transparent paper with slow-drying ink. Dust on the bronze powder immediately and let dry; then proceed as above.

Prepare Sensitizing Emulsion

Now to proceed with the sensitizing emulsion for making the silk screen stencil: Bicromated photo-engravers' glue is satisfactory if a little glycerine is added to make it flexible. For making enough bicromated solution to cover about 18-sq.ft. of silk screen, I proceed as follows:

Place 20 grams of chemically pure pulverized potassium bicromate (being pulverized saves the work of crushing crystals) into a small glass graduate or cup. Then weigh out 100 grams of a good grade of sheet gelatine. Have a double boiler ready with boiling water in lower compartment only. Into the upper part of double boiler pour 32-oz. (1-qt.) of pure water. Distilled water isn't necessary. When this water is hot, but not yet boiling, place the 100 grams of sheet gelatine in and stir with a glass rod or a perfectly clean stick of wood until the gelatine is thoroughly dissolved. Don't let the solution boil. Now take 8-oz. of boiling water and pour into the graduate or cup containing the bicromate; then stir with glass rod. The bicromate will dissolve quickly. Weigh and measure all ingredients accurately. Pour the dissolved bicromate slowly into

the hot gelatine solution, stirring all the while. Strain through fine mesh cloth. The solution is now ready.

Brush on Sensitizing Solution

The following operation must be done in a dark room: Apply the hot solution to the silk screen with a 3-in. flat brush. A camel hair brush will do, but one with a little stiffer bristle is preferable. A red sable is the best brush although quite expensive. A good grade of ox hair or bear's hair brush will do. Unless the surface is very large a single thick brush is preferable, as it has the required flexibility.

While holding the silk screen in convenient tilted position (the top tilted toward you about 10° out of perpendicular) brush on the hot solution, using parallel vertical strokes—first on one side of the screen and then on the other. Be sure that this first application of the solution completely covers over the nails or staples with which the silk is attached. Brush material on freely. Once a stroke of the brush has been made, don't go over it again; it will cause trouble by pulling up the solution.

Now stand the coated screen upright and, if speed is necessary, place an electric fan in front of it to hasten drying. With the fan going, the solution should become perfectly dry in about 15 or 20 minutes.

In the meantime the solution in the double boiler has probably become cool. This is all right if it hasn't become too cool, as the cooler solution is a little thicker and it gives a heavier coating on the second application. But be sure it isn't so cool that it doesn't brush on about as freely as the first application. If working in a temperature of 70°F., no difficulty will be experienced in handling the solution. In cold weather the solution may need to be warmed again. Apply the second coating the same as the first, except that the direction of brush strokes should be horizontal or crosswise of those previously used.

If left in a dark place, the unexposed sensitized screen will keep all right for about 48 hours without deteriorating. It is best, however, to expose the screen the same day it is prepared; then there will be no chance of failure.

Exposure to Make Print

The most important feature is perfect contact with sensitized screen during exposure. For this reason it is unwise to use celluloid heavier than .005-in. thick, because if there is a slight warp in the heavier celluloid it will be almost impossible to keep the celluloid perfectly flat against the screen. This invariably means failure in part of the design.

Now take a piece of plate glass slightly larger than the design itself, and place this glass in level position on the table before you, raising it with some object underneath — a flat box, two square lengths of wood, or anything convenient. Over this glass drape a piece of soft dark cloth. A cheap grade of velvet or felt will do. Smooth this out so that it lays perfectly flat without folds or wrinkles. Now get another piece of plate glass large enough to cover the whole frame.

Now for the lighting arrangement: Place an electric drop-cord over the center of the plate

glass you have just draped in black. Attach a white enameled reflector and insert a 300-candlepower bulb.

Since the distance which the electric light bulb must be from the screen depends entirely upon the size of the screen, the correct distances are given in the accompanying table.

Size of design in inches	Distance in inches from bulb to draped glass	Exposure time in minutes
12 x 12	9	14 to 18
16 x 16	10	18 to 22
22 x 22	11	24 to 30

Any design larger than these should be exposed with additional lights. For instance, a 20x50-in. screen needs three lights, with an exposure of 30 minutes.

It is not advisable to make one light do for a larger surface by using longer exposure. The light rays will creep underneath the finer lines, causing a partial exposure there. Be sure the light hangs steady and motionless; if it swings at all, the halation caused thereby will also effect a partial exposure underneath the design.

To continue with the exposure: Place sensitized screen on the draped glass, silk or bottom side up. Place positive, with drawing side down, over the silk screen.

If you are using a celluloid or lacquered paper positive, place a large piece of clean clear plate glass over it to hold it down flat. Now take a small dim red light (a small flashlight will do) and assure yourself that the celluloid is in perfect contact at all places. If, by a slight shadow, you notice that the celluloid is not in contact at some place, put a few weights on top of the plate glass at the edges. Generally, however, when plate glass is used the contact is good. Common window glass will never do because it is usually warped, particularly in the large sizes.

If you are using a glass positive instead of celluloid or lacquered paper, the second or top piece of plate glass is not necessary. Simply place the glass positive, film side to silk, and set a few weights at equal distances around the edge of positive glass, making sure the weights are clear of the design.

Now turn on the light and expose as instructed above. On account of the celluloid having a slight amber tint it generally takes a few seconds more exposure when printing on silk with the light. It must be understood that exposure time depends principally upon the strength of the lighting system.

(To be continued next month)

DeVilbiss Issues New Catalog

The DeVilbiss Co., Toledo, Ohio, announces a new catalog, "IB" covering their line of industrial spray-finishing equipment. This catalog, effective July 1, replaces the former catalog "IA."

The new catalog is designed to facilitate intelligent selection of the company's many spray-finishing equipment items for industrial purposes. Complete information is given on spray guns, air compressors, air and fluid hose, exhaust systems, spray booths, exhaust fans, and other equipment. The book contains much helpful information and interesting tables to aid the finisher in the proper association of equipment with materials and finishing operations. It is a handy reference book.

Prime Coating in the Foundry

by E. A. Zahn
Works Laboratory, General Electric Co.

The fourth of a series of 20 short articles prepared by the author.

MANY OF THE large manufacturers have had considerable trouble from paint failures in the field. As a result they have had to repaint hundreds of pieces of apparatus after installation at a cost of more than ten times what the original painting cost. Several concerns have taken advantage of this experience by prime coating all castings before the castings leave the foundry, as well as coating all fabricated parts before those parts are transported to another department. This has saved them thousands of dollars in refinishing costs, as well as having lowered actual costs of the original finishing. It has helped to bring about a higher quality, more durable finish for castings on motors and machinery.

There is still another great advantage in this system in plants where good housekeeping is an important factor. Imagine a motor department having thousands of parts in process, all covered with rust. Then picture this same shop after the foundry priming system has been adopted. Which department would a visiting motor customer be most likely to favor with an order for motors?

Most foundries have complete blast-cleaning equipment and they could greatly help their customers by adopting this system. Very little equipment is necessary for prime coating—a dip tank, drain board and a short length of conveyor with dipping arrangement. Most of the parts could be loaded on cars within one hour after dipping. It must be remembered that this is one case where costs can be lowered and quality raised by making only a single change.

Some foundry managers dislike to use their foundry for such work as painting, but this attitude seems rather childish when so much is at stake. The manufacturer who buys the castings is more than willing to pay the additional cost of prime coating at the foundry for several reasons. He does not need to blast-clean the castings when they are received, and he saves the cost of a priming operation, besides having additional insurance against paint failures. It costs no more to prime-coat castings at the foundry than in the factory, and the advantages are not hard to see.

Many customers who buy finished products in which castings are included, have learned to specify a rust-free painted sur-

face. If a casting is not to be blast-cleaned before painting, it is equally important that it be protected against the weather, and the only safe and proper way is to apply the priming coats before transportation. Another advantage in foundry priming is that there is very little handling of castings before priming, while in the old system they are handled several times with bare hands and often come in contact with oil and dirt, all of which is very difficult to find in order to be completely removed.

It is no longer a problem to find rapid-drying priming paints of good quality. In fact, most all paints now being used in factories where production is an important factor are fast-drying.

Spraying Small Quantities of Varied Materials

OCCASIONALLY it is necessary or desirable to spray very small quantities of different materials, involving frequent changes of color or changes in the type of material, as in decorating samples or doing specialty work. If only a quart cup or larger container is available for a very small job, I suggest placing the small batch of material to be used in a formed waxed-paper drinking cup (of the type dispensed from penny vending machines). Set this small paper cup in the bottom of the spray container, being sure the feed pipe enters the paper cup when assembling the equipment. Then you are in position to take your material from the drinking cup, meanwhile keeping your permanent container clean. When through spraying the small batch of material, you simply remove the paper cup and destroy it.

This method of handling small quantities of different materials can be used with either suction or pressure-feed equipment. A quantity as small as one fluid ounce may be sprayed, and the regular material container is not soiled.

These paper drinking cups are surprisingly durable for this purpose and almost any material may be allowed to remain as long as overnight in them without any ill effects. An economy of time is effected in cleaning your regular equipment; smaller quantities may be prepared, thereby eliminating surpluses of special colors, etc.; and the hazard of contamination of colors is reduced.

These cups may be purchased in containers of 500, at less than a cent apiece.—W. T. SMITH.

Consumer Market Data Handbook

The Consumer Market Data Handbook for 1936 is the latest of the series of market data handbooks prepared by the Bureau of Foreign and Domestic Commerce, Department of Commerce. This study is designed as a ready reference book presenting the most recent representative and useful statistics pertaining to the consumer market . . . data for cities and other places of 2,500 or more inhabitants, and for rural areas, as well as for states and counties. Data includes: retail and wholesale sales; service, amusement and hotel receipts; postal receipts; income tax returns; wired homes; motor vehicle registrations; residence telephones; farm information; A.A.A. payments; and emergency relief, by states and counties, etc.

Copies of the report may be obtained from the Bureau of Foreign and Domestic Commerce, Department of Commerce, Washington, D. C., or through any of the Bureau's District Offices located in principal cities. Price, 50c per copy.

See How the New Finishes Look on Your Own Work

Some of the most attractive finishes shown at the Furniture Markets are originations or developments of our Finishing Studios.

Many of the finishes we have brought out have become standard and for authentic effects, furniture manufacturers are becoming accustomed to refer to us first.

Among the popular finishes in which our designers have pioneered and excelled are:

Bleached and Blond (all woods)
French Walnut
Old World Mahogany
Delatone
Practical Finishes on Elm
Georgian Mahogany
Sheraton Mahogany
Maple on Poplar and Gum
Modern and Antique Maple
Cherry
Fruitwood in the Newer Tones
New Effects in Bone White, Old Ivory, etc.
Pickled Finish

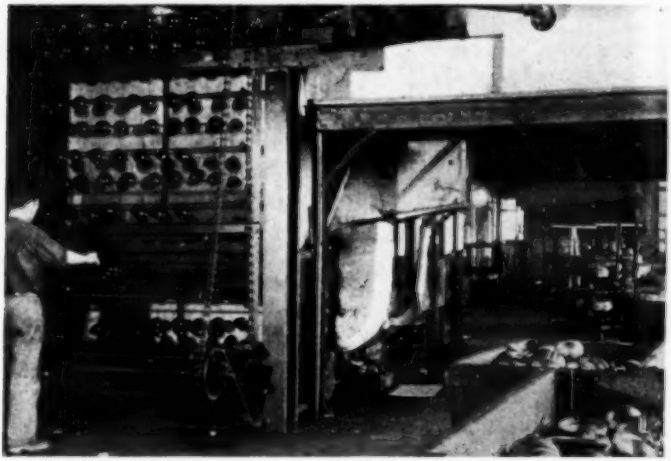
You can now see how the new finishes will look on your own work. Send us unfinished panels or carvings from your regular stock and mention the finishes in which you are interested. We will finish the pieces and return to you with full information. No obligation, of course.

Send the panels today.

JAMES B. DAY & CO.

Makers of Fine Finishes for Wood and Metal

CHICAGO



Sparton Automobile Horns

by J. B. Nealey
American Gas Association

This account of mass production of Sparton automobile horns (several times 10,000 daily) includes interesting highlights of automatic conveyor handling and transferring of the parts through metal cleaning, dipping and spray finishing, bake finishing, cooling and final assembly operations.

THE MODERN automobile horn is a somewhat complicated device that has advanced through progressive steps of development to its present state of perfection. The manufacture of "Sparton" horns in the plant of Sparks-Withington Co., Jackson, Mich., includes a final assembly line which is almost if not quite as long as that of an automobile assembly line. A single horn requires 12 to 18 subassemblies, according to model and type. In these various subassemblies, more than 200 pieces make up the complete horn. The principal part is the motor, which is of the magnetic vibrator type . . . .

The projector and motor housing are japanned or chromeplated or given an attractive combination of both finishes. Two

STANLEY

LACQUERS

THAT S-T-R-E-T-C-H!

200% to 300% on rubber products without disrupting the finish. These are clear, water white lacquers that produce a dry film that stretches with the rubber and when released will come back gradually to its original length.

White rubber can be given a lustrous, protective coating without discoloration. Colored rubber compounds can likewise be coated without color change. The film is highly mark resistant—marks which are permanent on most lacquered surfaces will promptly disappear.

Designed for spray or dip application, before or after cure, these lacquers are available in a wide range of formulations, depending upon the thickness of coating and lustre desired.

Introduced to the rubber industry some months ago, these lacquers are now being extensively used by prominent manufacturers. They are beyond the experimental stage.

Visit our permanent display at Metal Products Exhibits, Inc., Rockefeller Center, New York City

THE STANLEY CHEMICAL CO.

EAST BERLIN, CONN.

LACQUERS - SYNTHETICS - ENAMELS - JAPANS

A Subsidiary of THE STANLEY WORKS, NEW BRITAIN, CONN.

systems of japanning are employed—one with batch-type gas-fired ovens, and the other with a continuous gas-fired oven. For the former there is a line of spray booths and dip and drip units, and rolling steel racks on which the wet work is hung.

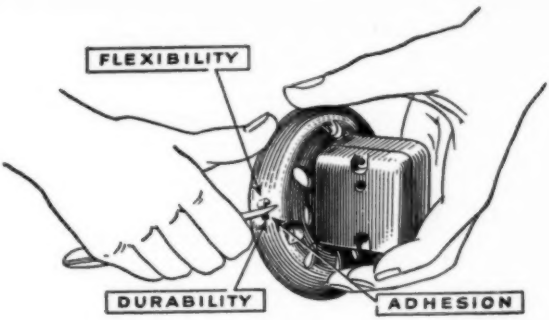
The dip and drip units are for the partial jobs—projectors which have already been chrome plated for half their length. These units are booths 10x5x4-ft. (4-ft. high standing on 4-ft. legs). Inside is a traveling conveyor and at one end the work is dipped in a tank of japan and hung on the conveyor. At the other end the work is transferred to the racks which are pushed into one of the ovens. There are several of these bake ovens, each being 8-ft. wide, 12-ft. long and 8-ft. high, and heated with two long gas-pipe burners set close to the floor.

All other japanned projectors, housings, brackets, etc., are baked in a continuous oven 6-ft. wide, 30-ft. long and 10-ft. high, in which is the standard double-chain loop and rod-type conveyor. This conveyor makes six vertical passes in the oven; the work is burned off, dipped and baked. The burn-off section houses two passes of the conveyor and here is located a perforated gas-pipe burner. The remainder of the heat for the oven is supplied by a separate heater located on top.

There are two duct systems in this oven—one in the bottom through which the hot products of combustion are forced into the oven by fan, and the other in the top for collecting the waste heat which is recirculated through the heater for reheating.

An automatic temperature control, consisting of a thermostat and motor-operated valve in the gas supply line, shuts off the gas supply to the burners whenever the heat becomes excessive. An-

View at loading and unloading end of modern conveyor-type gas-fired japanning oven.



FLEXADUR

a New Metal Finish by *Walker*

The Emblem of Quality in Finishes

One of the largest manufacturers of electrical equipment asked us to develop a finish that would be highly flexible—have exceptional adhesive qualities—and be durable and attractive.

We brought out a one-coat metallic baked finish that met these requirements, and named it *FLEXADUR.*

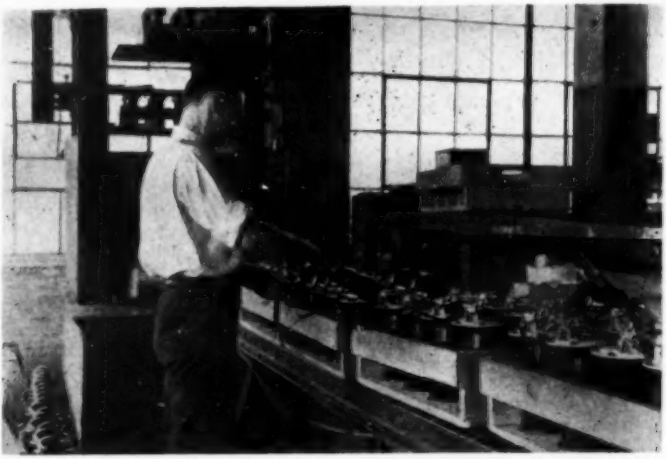
It was first applied on metal casings for electric fans. Severe tests showed that it would not wear off. But as a supreme test a knife blade was tried on it, as shown above, and only by cutting or scraping could this finish be removed. *That test satisfied everyone!*

Several manufacturers now demand this unusually high grade finish for their metal products.

WRITE FOR FREE SAMPLE OF WALKER'S FLEXADUR, and try the Knife Test yourself. Let us demonstrate FLEXADUR *on your products.*

H. V. WALKER CO.

Offices and Plant - - - **ELIZABETH, NEW JERSEY**



End of assembly line; elevator at back is for removal of products to packing room.

other motor valve in the same supply line is for safety only, and it is kept open as long as the circuit to the motors remains unbroken. In this circuit is a bimetallic strip which makes contact only so long as the flame of the pilot plays on it. In case of pilot failure it bends, breaks the circuit and thereby shuts off the gas.

Wash-Dry-Spray-Bake-Cool Mechanized Unit

Another completely mechanized unit which washes, drys, sprays on the japan, bakes and cools, automatically and continuously, is located in the refrigerator division of the factory. The principal feature is an overhead endless chain conveyor which carries the work through the various operations listed. The gas-fired bake oven is 15-ft. wide by 80-ft. long, and the washer, dryer and sprayer are arranged along one side while the conveyor makes a complete loop along (outside) the other side of the oven; it is while traveling around this loop that the work is cooled.

The washer, housed in a booth, consists of the usual tanks, pumps and sprays, and is 3-ft. wide by 30-ft. in length. The drying oven (25-ft. long) is heated with waste heat from the bake oven. Japan is applied by sprayers, as the work is carried through 15-ft. booths. Here the conveyor, looping back on itself, enters the baking oven—indirectly heated by a gas-fired heater located on top. The conveyor makes seven passes in the oven. Four atmosphere type gas burners fire into this heater which is 3-ft. square and 10-ft. long.

The recirculation method of heating is employed with a duct system in the bottom of the oven for distribution of the hot products of combustion, and a dupli-

We will send you a Cellophane Sheet . . . . .

half of which has been sprayed with

BRIGHT AS SUNBRITE THE SUN

SILVER BRONZE

The other half has been left clear. Spray the clear half with the bronze you are now using, and compare the two finishes—side by side. You will be amazed at the superiority of SUNBRITE . . . which has the following decided advantages:

1. It gives you the same coverage *with one-third less powder* (4 ounces per gallon);
2. It gives you more mileage . . . *33 1-3% more area is covered,* using the same amount as old-time powder and lacquer (6 ounces per gallon);
3. *One-fourth less lacquer is used to cover the same area*—giving you an improved product at 25% saving!
4. The particles in SUNBRITE SILVERS are small enough to pass through a 325-mesh screen. *But, by a new process of manufacture, they are only half as thick as in the old powders.* This greatly increases their covering capacity from the former average of 13,000 square centimeters per gram to as high as 22,000 square centimeters. These particles are treated so as to prevent "settling out" in either the dry or wet form, so that, with SUNBRITE SILVERS, you are assured of uniform shades. Shades are available from the rich bluish cast of silver plate to the golden yellow of Butler silver.
5. These finer particles make a non-porous and more impervious film on the surface treated, giving you a better gloss with your present top coat lacquer, and 10 to 25% better coverage with less rubbing.

But this is not all! SUNBRITE GOLD and COPPER BRONZES may be had in a wide variety of colors—more than 200 colors and shades are carried in stock, for immediate delivery. And we are prepared to match promptly any special color or shade that you may desire.

Write today for the test sheet—and for a free sample of SUNBRITE BRONZE. State your requirements, and prices will be quoted in any quantity desired.

The MITCHELL-MAYER CO., Inc.

Complete Industrial Bronze Finishes

3506 MARKET STREET **ST. LOUIS, MO.**

cate system in the top for the return of the waste heat to the heater. Motor fan propulsion is used. The gas line feeding the burners is bypassed, a motor-operated valve in the bypass being operated by a mechanical temperature controller, while another is located in the main line as a precautionary measure. Both these motors are wound in series with an electro-tube switch device, operated by the pilot light which bridges a break in the circuit. In case of pilot failure, both motors operate to instantly shut off the flow of gas.

Fine Car Colors Exhibited at Paris Show

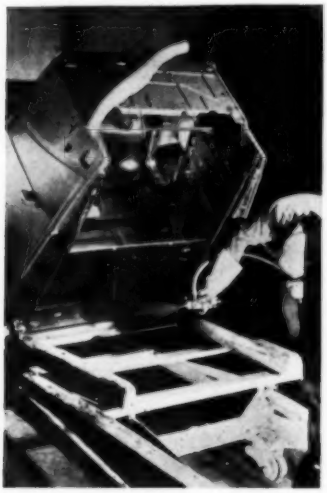
Although black remained well in the lead as an individual color, a popular trend toward lighter tones was noted at the Concours d'Elegance Automobile at the Bois de Boulogne, Paris, June 25, according to a report from P. H. Chase of the Paris Office of E. I. du Pont de Nemours & Co. Most of the cars were in medium or light hues; in some cases there were several shade of one basic color.

Being the first showing of new car colors since the shows in America and abroad late last year, the colors and combinations of colors and the various shades displayed may be accepted as the first indication of color trends for the coming 1937 models in this country as well as abroad. Of the cars exhibited, the popularity of the colors shown ranked in the following order: Black, 21; Ivory, 11; Blue, 10; Maroon, 8; Green, 6; Yellow, 4; Red and Beige, 3 each; and Brown, Gray and White, 2 each.

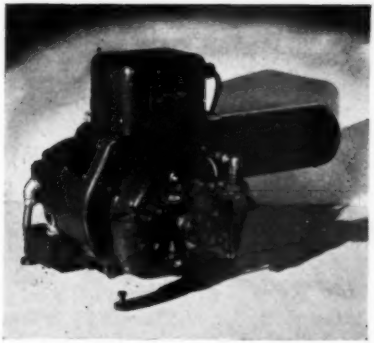
In the range of tones shown in one basic color, blue was a notable case. Only one blue was dark enough to be described as "navy." Some of the blues were as light as "sky blue," while there were one or two examples of a shade of greenish blue which is called by the French "Bleu Canard." Ivory's prominent position was probably due to the popularity that shade enjoys for competitions of this kind.

There were some unusual examples of distributing color in novel and ornamental ways. Colored fenders are still popular, generally being finished in the same color as the car. One unusual adaptation of color was in a duotone scheme. The car which was awarded the "Grand Prix d'Honneur" had front fenders in grass green, the color of the fore part of the car, and rear fenders in black, the color used on the body and top of the hood. Molding and stripes were practically non-existant, while chromium plating was found on very few exhibits.

The cars exhibited did not offer any suggestion for a change in the present stream-lining popularity and, also there was no accentuation of this principle. A majority of the cars were upholstered in leather, or lacquered fabrics, a fact due partly to the preponderance of convertible body types. However, it seemed to indicate a steady progress in France toward this type of upholstery.



View in Dodge truck plant showing cab of a truck in tilted position while the underside is being sprayed with enamel. The cab rests on a special conveyor which holds it securely in this tilted position. Although in the completed truck the underside is hidden from view, it is nevertheless given this coating of durable finishing material to protect the metal from rusting after the truck leaves the factory.



IT'S A KORTH OIL BURNER AND AN S-W OPEX FINISH

● Carter-KORTH Oil Burners both look and perform their part. To give these burners a finish of enduring beauty they use S-W Opex Lacquer. Opex Lacquers dry in but a few minutes; and because they are quick and easy handling they are ideal for large production and where space is limited. They are available in a wide range of durable colors, and types to meet your particular needs.

● Whatever your product or finishing requirements, Sherwin-Williams has a finish and a Finishing Engineer to help your products make a greater appeal in today's market, and at minimum final finishing costs. Write The Sherwin-Williams Co., Cleveland, Ohio, and all principal cities.

SHERWIN-WILLIAMS
INDUSTRIAL FINISHES

More Synthetic Finishes for Furniture

Heavier bodied coats
Lighter bleached woods
More rubbed finishes

by Orrie D. Maal
Los Angeles, California

SINCE MY last article on furniture finishing, published in December, 1935, issue of INDUSTRIAL FINISHING, I have noticed a decided change in the use of finishing materials here on the Pacific Coast. During the last six months the trend has been more to "body" finish — away from the flat and skinny coats of material to semi-gloss and high polish—and with bleached woods coming in from all sides it has been a wonderful improvement, bringing out the beauty of the wood and real depth of the fine veneers.

A good deal of this has been made possible through the use of synthetics. Even manufacturers of the cheaper lines are beginning to see the possibilities of synthetics due to their remarkable body building and covering . . . . holding down the cost of body finishes as compared with the same kind of job done in lacquer.

The July Furniture Show here will show this difference in several lines, from the looks of things now [written late in June]. Several plants that are not now equipped with dry rooms or dust-free rooms are contemplating the building of these rooms.

The metal industry has been leading the parade with these synthetics, especially so in baked finishes. In several metal plants the synthetics have replaced lacquer completely. The metal business has been working on a basis of not only durability but also of beauty of appearance, at the same time not increasing their cost but giving more and more value for the customer's money.

With the return of more body and more depth to finishes on furniture, it naturally follows that all-round quality must be better, as both of the above will create a demand for better work under the finish. The flat and skinny finish has a tendency to hide defects and poorly sanded woods.

At least we can hope that the consumers will start buying furniture from the same standpoint as they are now buying stoves, refrigerators, etc.—not only for looks but also for lasting qualities of everything going into the manufacture of same.

The synthetic and body finishes in lacquers will also change the

ADVERTISING PAGES REMOVED

set-up that has prevailed in most factories during the last five years. This is already noticeable in some factories. I mean the coming back of rubbing rooms. I know of a few factories here that, up to six months ago, haven't had a rubber working for several years. Now, in one factory alone, they have several rubbers and the demand for good burning-in men and patchers is getting better. I've also noticed that the old rubbing machines are being dug up and placed in service. That will give more jobs and some business for manufacturers of that type of machinery.

Anyway, it looks as if we are to see some really good furniture once again. I can see a lot of improvement in the type of merchandise coming in from the old factories in the middle west and other localities in the country.

We have hopes of a good fall business in furniture. With a lot of building of the better grade homes going on, as well as the moderate priced homes, there ought to be a good demand this fall for high grade, as well as the cheap grades, of furniture—and, as usual, it will be up to finish manufacturers to develop the new type of finishes demanded for this better class of merchandise.

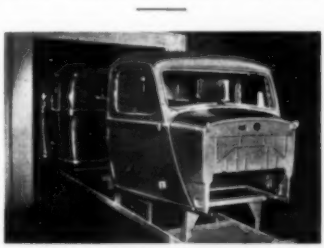
Refinisher's Putty

ONE OF the important problems that comes up repeatedly in every furniture refinishing shop, is how to fill and level or smooth over nicks, cracks, dents, etc., so that the filling will stick permanently, will not shrink, and can be smoothed and finished to match the adjoining wood surface. I believe every refinisher is interested in any repair putty that meets the above requirements, and is economical and easy to apply.

I am always interested in new materials, and I believe that others are also, therefore I feel prompted to mention a repair putty that I have found answers all the requirements of the furniture repair shop. It's called "Duratite." It comes in a few different colors which can be mixed to match various shades of finishes on furniture woods. It is also useful in making repairs on the damaged surfaces of new furniture at the factory or sales room.—EDW. C. H. ROTTMANN.

Waterproof Cements

Cements that are waterproof and which have strong durable adhesion to rubber, leather, fabric, paper, cork composition, and metal are announced by the Boston Blacking & Chemical Co., Cambridge, Mass. These cements are called "Bostik."



View in Dodge truck plant, showing truck cabs emerging from enameling ovens. At this point a workman inspects them closely to make sure that the smooth enameled surfaces are perfect in all respects. From here the cab is carried on a conveyor to the body assembly line where skilled workmen equip it with upholstery, dash panels, and various accessories, and make it ready for the main assembly line where it is then mounted upon the chassis.

CRYS
gets
IT

Listen to

AN INSPECTOR WHO KNOWS

CRYSTAL CLEAR DUCO has other advantages besides its extraordinary brilliance . . . it is easier to spray, saves rubbing time

"AN inspector has to be pretty careful about the furniture finish he O.K.'s. And I want to tell you that CRYSTAL CLEAR DUCO can't be beat for looks. It gives furniture a brightness and sparkle that adds a whole lot to the design. It brings out all the beauty of natural wood. And I know, too, that it helps the boss sell his furniture faster."

Inspectors aren't the only men who will tell you about the advantages of CRYSTAL CLEAR DUCO. Spraymen say it is much easier to spray and smoother flowing. Rubbers find it is quicker and easier to rub.

Crystal Clear Duco is Durable

This new du Pont finish has other qualities besides its remarkable clarity and ease of application. CRYSTAL CLEAR DUCO *keeps* its showroom brilliance. It has long-wear durability . . . it resists scratches and bumps . . . adds *extra value* to furniture.

That's why many manufacturers are specifying CRYSTAL CLEAR DUCO on all their furniture. They have found it helps them speed up sales.

Get all the facts about CRYSTAL CLEAR DUCO yourself. Find out how this new clear finish will sell more furniture faster. Write to E. I. du Pont de Nemours & Co., Inc., Finishes Division, Wilmington, Delaware. In Canada: Canadian Industries, Ltd., Toronto 9, Canada. In Great Britain: Nobel Chemical Finishes, Ltd., Slough, Bucks, England.

DU PONT

REG. U.S. PAT. OFF.

BALAN

Hardwood Caskets

by M. Langius

Some of the latest natural wood finishes with and without parallel color stripes, and new harmonizing combinations of the natural finish with attractive effects in color.

THE CHIEF woods used in the manufacture of hardwood caskets are mahogany, walnut, maple, birch and oak.

To produce the finish known as our "Old World Mahogany," we first stain the wood with a red-yellow water stain,* using more yellow than red. Then we sand the surface lightly and fill with a smudge filler which is a thin material, not so much to be used for filling as it is to help produce an aged effect. When the filler has partly set, we brush it into the pores of the wood with a mild wire brush. By using a wire brush (one that is not too stiff) it helps coat or age the walls of the wood grain with this thin filler, working it "down in," and giving the wood surface and the recesses or pores a one-color finish with no depth of color. We wipe off the surplus with the grain so as not to fill the pores, due to the fact that we are working for a special antique finish not found in ordinary filled or unfilled jobs.

When the surface is thoroughly dry we give it a wash coat of lacquer sealer; then sand and stripe. Three parallel gold stripes (3/32 or 1/8-in. wide) are to be run on the base moldings, starting about 1-in. from the bottom, the stripes being ¼-in. apart. Also, we place one stripe on the upper body molding and three stripes on the top panels, starting 1-in. in from the edge.

Our next step is to oil glaze the entire piece, shading and highlighting as may seem desirable, just so we get a nicely balanced job. Now we can apply a double coat of semi-flat lacquer. Rub with very fine steelwool and wax, the steelwool to be dipped into the liquid wax. Then polish with a soft cloth.

Walnut and Oak

Walnut and oak are treated in a similar manner. The body stain of a yellow maple type can be used to produce an attractive effect. The remainder of the finishing process is the same as has been described for mahogany.

Colonial Mahogany

To produce a Colonial mahogany finish, first use a deep dark red stain. Sand when dry, fill,

*I recommend using water stain because it does not fade, and in combination finishes, such as mahogany and white, the color does not bleed . . . It is safe and just as cheap, especially for caskets.

seal, sand again, and finish with a double coat of lacquer. Rub with steelwool dipped in liquid wax; polish with a soft cloth.

Brown Mahogany, High Gloss

Brown mahogany is a dark brown finish. It is an "old finish," starting with a coat of brown stain of the desired color. When dry, the surface is sanded, filled, sealed and again sanded. Stripe in cream color. Then apply two coats of high-gloss lacquer. Rub with a rubbing machine as described in my previous article, "Metal Casket Finishes" (see May issue, pages 40, 42 and 44). This makes a rich, beautiful finish.

Sheraton Mahogany

Sheraton mahogany is a light but true reddish tone finish. Like brown mahogany, it is an old finish that is being revived to meet the demand for something different. It was one of the outstanding mahogany finishes several years ago. The difference between Sheraton and many other mahogany finishes lies only in the color of the stain used. Filling and finishing are the same as for brown mahogany.

Walnut Finish

Fill with a walnut filler. When dry, tone and shade; then seal, sand and decorate with ivory stripes on moldings and top panels. Spray on a clear high-gloss lacquer. Rub and polish with the machine, as described previously.

Maple Finish

Apply a medium color maple stain; seal and sand; then apply masking tape as described in my previous article dealing with the finishing of metal caskets. On the base molding, apply one 1-in stripe (instead of one ⅛-in. stripe) 1-in. from the bottom. Shade with a brown lacquer shading stain. Then spray on two coats of high-gloss lacquer. Rub and polish with machine.

Birch Combination

Stain the body panel and top panel a light reddish tint; seal and sand. Apply ivory color to the top and body moldings. Starting 1-in. from the outer edge of the top panel, put on three narrow ivory-colored stripes about ¼-in. apart. Run one stripe near the top and bottom of the body panel about 1-in. from the moldings. Apply two coats of gloss lacquer. Rub and polish with machine. You will find this gives a beautiful color combination. This same combination can be used in reverse order, that is, finish the top and body panels in ivory and have the molding stained, using brown stripes on ivory. Combinations of finishes, using color and stain, can be worked out to produce some very attractive effects; for example, black and white, maple and cocoa brown, mahogany and white, etc.

Maple and Birch Ambertone

Apply lacquer sealer over the entire casket; when dry, sand. Now, with a prepared lacquer that contains a stain toner, spray on an even coat. This gives you a transparent amber color. Stripe the base and top moldings and the top panel with ivory lacquer enamel. Then spray on a double coat of semi-gloss lacquer, which gives a rubbed effect. This is a cheap but good looking finish.

And so lustrous finishes bring us a subtle beauty of the ancient Orient . . . down to the last word in modern burial cases. Today, we can be buried like kings.

CAN YOU IMAGINE GREATER DEMANDS ON A FINISH?

The *Air Pilot* must withstand the ravages of weather—heat, cold, sun and rain—and yet have the beauty required in home or office.

THAT'S WHY

Standard Air Conditioning Inc. Selected DURAD ENAMELS

After careful tests, officials of this Division of American Radiator & Standard Sanitary Corporation selected DURAD ENAMELS and undercoats for the complete finishing schedules on their entire air conditioning line.

DURAD ENAMELS produce a beautiful, durable, semi-gloss finish. They are resistant to marring, grease, fruit juices, fingerprints, acids, and household chemicals.

DURAD ENAMELS are economical in application, flexible, long wearing, easily cleaned, unaffected by wide temperature changes and long exposure to moisture.

Supplied in all colors for high, medium, and low temperature baking and air drying. Full information on request.

MAAS and WALDSTEIN COMPANY
430 Riverside Avenue, Newark, New Jersey
Branch Offices and Warehouses:
1336 Washington Boulevard, CHICAGO 1228 West Pico Boulevard, LOS ANGELES

Routing and Finishing Custom-Made Products

by Ernest J. Nettel

THE MANUFACTURE and finishing of custom-made merchandise, such as wood display fixtures, for example, presents many problems affecting the cost and selling price of these articles. This kind of work demands the closest supervision all along the production line if any substantial profit is to be made.

Inasmuch as every job, except in the case of repeat orders, must have an established selling price before it is actually put into production, considerable thought must be given to each and every operation through which the work will pass in the factory. The number of articles to be manufactured is also a factor in the set-up.

In our particular case, no selling price is ever made without first making a completed sample which is presented to the customer for his acceptance. At the time of presenting this sample to the prospect, every operation has been thoroughly gone over and the cost is figured accordingly. Our salesman is then armed with price quotations on the article, based on the quantity to be purchased by the customer. If, upon examining the article, the prospect decides upon some changes before actually placing his order, our salesman must have had enough factory experience to be able to estimate any additions or deductions from the selling price, as originally submitted, so that he will be in position to close his order on the spot.

After an order is received, the original hand-made sample, with a letter describing any changes, is returned to the factory where it is immediately placed in the hands of our plant manager who in turn routes the article through production.

At this point close cooperation among the plant manager, mill foreman and foreman finisher is absolutely necessary, due to the special forms, set-ups, etc., required for the proper milling of the material in preparation for the finishers. Also, special racks

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The object of this article is to show how necessary it is for any concern manufacturing custom-made articles to pay particular attention to the routing and finishing of each item, through its various operations, so that when it is finally shipped complete and the cost man figures the cost, it will be found to be profitable.

. . . Is there a thief stealing your money?

The man who crawls through your window and steals your money is a thief . . . but no more a thief than the inappropriate finish on your product which robs you of sales!

Losing the money you should have had is just as much of a loss as losing the money in your jeans.

If the finish of your product isn't the best in its field, you have a problem to solve . . . and our creative studio can help you solve it. Write us for more information about this service which is furnished without charge to reputable concerns . . . tell us your finishing problems. Certainly no harm can come from our contacting each other . . . it is most likely that we can cooperate to our mutual advantage.

Rockford Varnish Co.

ROCKFORD, ILLINOIS

and set-ups may be necessary for the proper finishing of all parts to prevent any lost motion of the material as it moves through successive stages of production to its ultimate completion and shipping.

The mill foreman's route sheet indicates the quantity of stock necessary for the order, together with information regarding all special forms required for milling, as estimated from the original hand-made sample. Also, the estimated time required for each operation, and the finish to be applied to each part so that the mill foreman may work with the foreman finisher in seeing that the parts come through in the best condition to take the finish required.

Upon receipt of his route sheet the mill foreman immediately starts to prepare all special forms so they will be ready when the stock reaches the point where these forms are required. The foreman finisher also prepares any special racks, etc., necessary for the proper finishing or drying of the parts, so that from the time the stock leaves the drykiln and moves along its regular route, there will be a minimum of lost motion and expense not included or allowed for in the original estimate.

Since the proper finishing of any wood surface depends largely upon the preparation of the stock in the millroom, the mill foreman and foreman finisher should cooperate closely on this phase of operations to make sure the finishers receive the stock in the best possible condition. Also, if finished parts are to be assembled afterward, the finishing foreman should see to it that he receives the various parts of the article in proper time to handle the finishing operations, so that all completed parts will be delivered to the assembly department as near the estimated time as is possible and consistent with a good finishing job. This is easy to do because the foreman finisher receives his route sheet at the same time as the mill foreman, and in working together in this connection there will be little if any lost time in the moving of these parts.

In this particular business, articles manufactured often require the matching of colors for finishing, which naturally takes considerable time. On some items where as many as 20 different colors require matching and the customer's okay, this work must be started immediately by the foreman finisher upon receipt of his route sheet, in order that he may be ready to start finishing operations as soon as he receives his stock from the millroom.

In matching colors the foreman finisher always mixes up his colors in very small quantities, keeping a record of his formulation in each case so that when his colors are okayed by the customer, it is only a small job to mix enough of each color to take care of the entire order. In the case of repeat orders, this does away with the necessity of further matching; he simply refers to his color formula file for any particular customer.

In this business lacquer finishes, both clear and pigmented, are used exclusively. . . . A clear lacquer is used as a priming coat and it is carefully smoothed up before the finish coat is applied.

You save money when lacquer is made with

BUTANOL *and* BUTYL ACETATE

Practical experience in scores of factories and finishing plants has built a convincing case for Butanol and Butyl Acetate. These ideal lacquer solvents are cutting costs for companies from coast to coast. But the best proof for you is use in your own factory. Regardless of the quality of lacquer required for any job, it can be made most economically and used most economically when formulated with Butanol and Butyl Acetate.

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NEW YORK CENTRAL BLDG., NEW YORK, N. Y.
PLANTS: TERRE HAUTE, IND.; PEORIA, ILL.; WESTWEGO, LA.; HARVEY, LA.; AGNEW, CALIF.
PROMPT SERVICE FROM BRANCH OFFICES AND WAREHOUSES

Synthetic Bake-Enamels for Hospital Furniture

by Ray C. Martin

A CONSIDERABLE portion of surgical equipment, including cabinets, furniture and to some extent instruments, is made of iron or steel which is subjected to conditions that tend to start the formation of rust. The surfaces of this metal must necessarily be thoroughly protected by a coating that is resistant to water, blood, drugs and chemicals.

In a hospital, where freedom from dirt, rust and contamination of various kinds is very essential, it is of great importance to select protective coatings that are known to withstand the action of strong chemicals, etc. Modern synthetic enamels—a chemical perfection of recent years—are meeting with great favor in this line because of certain advantages they have over many of of the older types of finishes. In this group of synthetic finishes two general types are employed.

Two Types of Synthetics

1) We have phenol-formaldehyde resins, which are essentially reaction products of such phenolic compounds as phenol, cresol and xylenol with formaldehyde, paraformaldehyde or acetaldehyde. The phenol-formaldehyde type is very resistant to alkalies and acids. In this connection, such compounds are used in the plastic molding industry where, by heating under pressure, they conform to the mold used and are fabricated into many useful articles, replacing iron and steel in the manufacture of several different products. The present day Bakelite products are of this type of compound.

In the paint industry there existed a need for a type of synthetic compound that would be soluble in oils, or which could be modified with oils. This property of oil compatibility was achieved by "polarizing" phenol with various chemical groups.

2) The second group is known as glycerol-phthallate or alkyd materials, which are, in a general way, reactions of glycerine and phthallic anhydride. They are customarily modified with drying and non-drying oil acids. In these materials we find the most durable resin obtainable for outdoor exposure . . . very resistant to ultra-violet light, and capable of being baked at temperatures as high as 500°F.

These synthetic enamels are composed of resin compound, solvents, pigment, and/or driers, the driers depending upon the degree of temperature to be employed in the baking operation.

Still—the Best Sellers—

HILO

GLOSS and RUBBER
BLACK BAKING JAPANS

June, 1916, saw the first bulletin of Hilo Black Enamels and Japans. Then, as for thirty years before, these blacks were "best sellers" — in quality and value unsurpassed.

Today, these Hilo Blacks are still the Best Sellers, notwithstanding the growth of such new items as crystals, baking synthetics, wrinkles and lacquers.

There Is a Good Reason —

Users tell us that for economy, ease of application, satisfaction in service and dignity of appearance, the Hilo Black Baking Japans are outstanding.

If you can use or are using black send for Hilo Bulletin No. 1.

HILO VARNISH CORPORATION

HILO

73 Years Experience in "Better-The-Finish"
42-60 Stewart Ave. Brooklyn, N. Y.
Chicago — — Boston — — Philadelphia

Varnishes Enamels Japans Lacquers

Cleaning the Metal

It is of the utmost importance to thoroughly clean the metal surfaces immediately before the application of coating materials. When metal furniture leaves the fabrication department it should be washed thoroughly with a suitable solvent cleaner or thinner combination which has an affinity to dissolve the grease present in the metal. Rust spots should be sanded, and steps should be taken to protect the surface from any future formation of rust. Care should be exercised to see that finger marks in the handling of the furniture are obliterated by wiping with a rag of saturated solvent or thinner liquid.

Synthetic Enamels

For application onto metal furniture, instruments, etc., the materials basically used are generally referred to as "heat hardenable." They are known as resinoids, which result from chemical reactions of aldehydes and phenols. Such a resinoid, in conjunction with the proper type and amount of pigment, solvent and/or oil modifications, as applied onto metal, is subjected to heat which causes a hardening action to take place. This action is known as polymerization. When this is completed, the surface so coated is permanently infusible and insoluble. This is of great importance in hospital work as it gives a surface that is easily cleaned.

Another important attribute of baked synthetic enamels is the lack of odor which is very important in hospital environment. Synthetic enamels are applied by spray gun application in much the same manner as in a typical lacquer schedule for finishing similar work. The synthetic enamel finish offers durability in use, resistance to abrasion, water, soap and alkalies, acids, etc., all of which are important in a finish on hospital equipment.

Testing Metal Finishes

The true evaluation of such finishes can be determined by actual tests such as the following, for example.

a) Sunlight and weather resistance: This test is conducted by exposing coated metal panels in an accelerated testing device known as the "Weatherometer," or it may be conducted in such strategic outdoor locations as Florida.

b) Moisture resistance: This important property in protective coatings should be fully realized. Tests are usually made with a nozzle spray device in which the water spray is broken up by striking a baffle plate and depositing mist onto the finish. Syn-

(Continued on page 62)

Dolan's DU-BAR Bleach

Wateroil Stains—

All the newest shades. Light-fast, quick-drying, Non-Grain-Raising. Clear, clean colors. More finished surface per gallon — economical and uniform finish.

Don't forget "Dolco-Real-Fill Fillers," Light-Fast Shading Stains and Dolan's "Unquestionable Quality" Lacquers and Sealers.

Works Like Magic!

Will bleach mahogany absolutely white!

Packed in convenient and economical half-gallon lots of both solutions. Sold with guarantee of satisfaction.

V. J. DOLAN & CO., Inc
1830 N. LARAMIE AVE. CHICAGO, ILL.

PUT CHARACTER . . . .

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COTTON or RAYON FLOCKS
OF SUPERIOR QUALITY

Dyed to any shade required

Claremont Waste Mfg. Co.
CLAREMONT, N. H.

The Country's Leading Makers

Specks in Brush Work

For some time I have been spraying cars with a popular make of spray gun, but at this time I wish to obtain information about brushes and how to keep them clean. I have experienced considerable difficulty with brushes in regard to their cleanliness. Some of my work comes out fairly good, but there is always a certain amount of small particles of dirt which I do not seem to be able to eliminate. I use a tack rag directly before I start to brush, which helps some, and I have even combed a new dry brush before starting. Anything you may suggest to overcome the troubles I have mentioned will be appreciated. — W. H. E.

These small particles of dirt, which you complain about, come from somewhere — from your brush, from the paint, varnish or enamel you use, or from the room in which you do your work.

Expert brush men go to a great deal of trouble to clean their brushes and keep them in proper condition for clean work. Even new brushes need some cleaning before being placed in service for high-class work. They may contain a slight amount of dust and a few loose bristles, which you will notice if you rub and bend the brush back and forth several times over your clean, dry hands or over any clean dry surface. After rubbing out what dry dust and loose bristles can be removed in the manner just mentioned, shake the brush vigorously in the air and then wash it thoroughly and carefully in at least two separate cups of clean turpentine—

Questions « Answers

giving it a first wash and a second wash. When doing this, twist and bend the bristles gently while in the turpentine and later in the air as you shake the brush clean of all turpentine and other foreign particles.

Finally "wash" the brush in a cup of the strained material to be brushed—paint, varnish, lacquer or enamel. Pick up a brush full of material and gently but firmly draw the loaded brush over a clean dull knife edge (a case knife, for example) letting the flow of paint from the brush pour down into a separate small container. Do this repeatedly, always dipping the brush into clean paint and drawing it across the knife edge, first on one side then on the other. If any or loose bristles are going to released, they will come out during this treatment, instead of coming out later on the surfaces you are painting. Then strain this material before you use it.

Some finishers and refinishers go so far as to "break in" new brushes by using them several times on less important or less particular work before placing them in service on the finest work.

Once a brush is properly cleaned and broken in, it should be used for spreading only one kind of material, if possible. In other words, avoid switching from varnish to enamel, from

SURFACERS

PORES NEED FILLING for smooth - textured attractive finishes. Presdwood, celotex, natural woods, rough metals and porous compositions need quick-drying, easy-sanding, high-bodied surfacers—in short, our CEL-U-LAK Surfacers.

These have unusually high body, coupled with low viscosity, permitting a heavy application by spray; air dry to sand in 1½ hours, force dry at 125° for 20 minutes. They are ground finely and have phenomenal adhesion and resistance to moisture.

CEL - U - LAK Surfacers are standard in white, ivory, dark grey and red. They have for 6 years been an outstanding successful item in our line. We suggest you examine it for your requirements.

The
VARNISH PRODUCTS CO.
CLEVELAND, OHIO

Leoline **Good "Build"** Leolac

is one of the many qualities of LEOLAC
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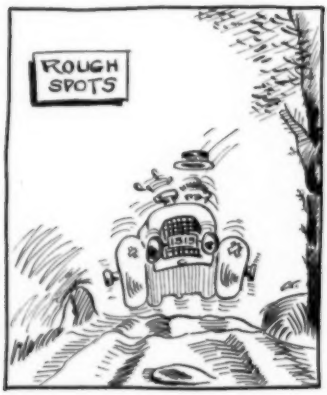
paint to shellac or lacquer, and vice versa.

You are probably familiar with the use of a "brush-keeper"—a container of liquid into which the brush is hung (by a wire or nail passing through a small hole in the handle) when not in service. The bottom of the bristles should clear the bottom of the brush-keeper container by about ½-in., and the top surface of the liquid should extend up past the brush bristles and cover the lower edge of the brush ferrule by almost an inch. The brush-keeper should be covered, too, so the contents will remain free from any dust or dirt. In fact, some brush users insist upon having an airtight brush-keeper.

The liquid in which to hang brushes to keep them clean and in good condition will depend, to some extent, upon what the brushes are used for. Usually the liquid is a thinner or solvent, or a mixture of thinners and material for the paint, varnish or lacquer in which the brush is to be used. For example, for ordinary paint brushes, a brush-keeper of turpentine or linseed oil, or a mixture of the two, is generally employed. A specially thinned varnish for varnish and shellac brushes, and a specially thinned clear lacquer for lacquer brushes, is suggested.

Naturally, the brush-keeper liquid should be renewed from time to time, because clean fresh material is best for keeping brushes clean and in good condition. The object of the brush-keeper is to prevent paint, varnish or lacquer from drying and hardening in the brush (especially up near the ferrule) to later flake off as little particles, which may account for the specks you find as you spread your paint, varnish or lacquer.—H. C. F.



Cellulose Acetate . . . Burnproof?

I read with interest Mr. Greggs Phillips' article in June issue of INDUSTRIAL FINISHING on "Cellulose Acetate as a Cigarette-Burn-Proof Finish for Furniture Tops" (pages 5, 6, 7) and must remark that I cannot entirely agree with him on this. There are other difficult factors, aside from basic cost of materials, to be overcome. A few are: Cellulose acetate is not entirely waterproof; adhesion is affected by extreme temperature changes, because it contracts and expands more rapidly than wood or metal (due to its cotton content); it deteriorates rapidly under the actinic and ultra-violet rays of sunshine, etc. In the light of these factors I believe that it is hardly good policy to advocate its use at this time. *(Continued on page 53)*

I mention these facts with the authority of having had considerable experience in the use of cellulose acetate airplane dopes and metal coatings — and along with probably hundreds of other dabblers, I am still playing around with cellulose acetate-base coatings. I know of two nationally known paint and lacquer manufacturers that are experimenting with this material . . . . to discover an absolutely fireproof airplane dope that will not be affected by moisture, and one that will be flexible and durable and will remain taut under various conditions of heat and cold. This may be arrived at soon, or it may never be discovered.

Also, I believe cellulose acetate is not burnproof but merely fire-resistant, as any that I have seen will not blaze but will char considerably, and a cigarette will leave an unsightly mar.—GEORGE A. ENDOM.

Pyroxylin Coated Textiles

Pyroxylin coated textiles have made a major contribution to the textile industry in its efforts to maintain its position in the face of increasing inter-industry competition. . . .

The pyroxylin coating of textiles first assumed commercial importance as an industry about 15 years ago. The pyroxylin coating is, of course, a solution of nitrocellulose in a mixture of organic solvents. After evaporation of the solvents, the pyroxylin serves as a bonding or waterproofing agent. Such solutions are ordinarily known as dopes, cotton solutions, lacquers, etc.

To provide flexibility and elasticity, the addition of plasticizers or softeners is necessary. Other components are pigments, fillers, and gums. Castor oil was the first widely-used softener. It is not a true plasticizer, as it does not intimately dissolve in the solvent mix, but remains rather as a suspension. Later diamyl and dibutyl phthalate and a host of others were introduced, but castor oil and the phthalates continue to be among the most widely used. Ordinarily, one to two parts of plasticizer to one part of nitrocellulose are employed, but if the film is pigmented, more plasticizer is needed. About three times the weight of the dry nitrocellulose is considered the upper limit, however, and any excess will tend to make the film tacky (or greasy if an excess of castor oil is employed).

Color pigments suitable for the film comprise a long list such as zinc oxide, zinc sulphide, lithopone, titanium dioxide, carbon blacks, lamp black, Prussian and ultramarine blue, chrome yellows, and the various iron oxides. Lake colors are also employed to obtain brighter shades.

The textile manufacturer usually finds it to his advantage to mix his own solutions unless he uses small quantities, in which case he may find it better to purchase solutions already prepared. By mixing his own solutions, a greater variety of combinations can be obtained from a smaller stock of materials. — *Solvent News.*

A reader who has just asked for another copy of June issue to replace one that "has gone astray," informs us that he has on file every copy from No. 1, Vol. 1 of INDUSTRIAL FINISHING magazine—151 different copies in all.

What's New

Making Colored Dots Quickly

For making regular and special shaped colored dots quickly and economically, the Paasche Airbrush Co., 1917 Diversey Parkway, Chicago, Ill., offers an "airprinting and aircoloring unit" which includes a shield airbrush, dotting shield, syphon cup with cover, air hose and air separator.

Markings include square, round and triangular dots for golf balls, cupid-bow lips and realistic eyes for

The marker and a square dotting shield for use in marking golf balls.

dolls, and various symbols, trade marks and decorative markings on smooth or irregular surfaces — all made with clear, sharp edges. Special shields for any pattern or design can be supplied. Where several colors are used for the complete design, one shield for each color is required.

Lacquers That Stretch

An announcement from The Stanley Chemical Co., East Berlin, Conn.:

"A new clear water white lacquer for rubber footwear and other rubber products has been developed and tested by The Stanley Chemical Co. This material is so white that it can be applied over white or other colored stock, either before or after cure, without discoloring the rubber, and the lacquer itself will not discolor in the cure.

"The lacquer . . . . has the ability to stretch. A film of this lacquer can be stretched on rubber fully 200% and when released will come back gradually to its original length; has unusual resistance to marking; on most rubbers it will not mark whatsoever. On those rubbers where it shows a slight tendency to mark, the mark disappears entirely within a very short time. This lacquer has an excellent feel on rubber and has extreme durability, adhesion, and flexibility.

"Designed for spray or dip application, this lacquer is available in a wide range of formulations, depending upon the thickness of coating and degree of luster desired."

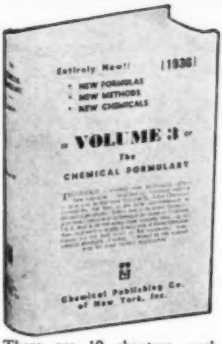
"Bleach-White"

An announcement from The Glidden Co., Cleveland, Ohio, follows:

"Bleach-White" has the amazing properties of bleaching practically any type of wood from its original color to an almost natural white, without leaving any deposit of a salt or pigment in the wood pores. The material is sold in two solutions, but just before being used, the two solutions are mixed together and applied as one solution. A surface treated with Bleach-White should stand overnight before recoating, although it has been successfully recoated after three hours. Any type of finishing material can be applied over the bleached surface.

One application will bleach practically any wood to the degree of whiteness required. To bleach further, one or more additional applications may be used, depending upon the whitness wanted. If Bleach-White seems too strong in its original state, it can be weakened by adding distilled water, in accordance with instructions.

When mixing together the two



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Yes—that's what you get in THE CHEMICAL FORMULARY—19 books in one. There are 19 chapters, each one a complete book in itself. And each chapter contains more formulae and practical information than you could find in any book on the same subject. It is packed with "meat" and up-to-the-minute information that will be priceless to every technician and practical worker. It will save you tedious library work and research. It will give you what you want, when you want it.

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Every formula in Volume III is different from those in Vols. I and II. It is *not* a revised edition. All material is new and up-to-the-minute. It is complete in itself. Only one new idea will more than pay for its cost.

More than 25,000 copies of Vols. I and II are in the hands of leading chemists, engineers, professors and other technicians.

Don't deny yourself this standard tool.

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If you already have Vols. I and II, you won't need urging to get Vol. III. It contains entirely new and different material. It will be just as valuable to you as the previous volumes.

If you do not have the previous volumes, get all three if you can afford it. Or start with Vol I, and after you have that, we know you will want the others. Remember, each volume is different and complete in itself!

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solutions of Bleach-White, use only glass, enamel ware, or hard rubber containers. Add one part of solution No. 2, to four parts of solution No. 1. Stir thoroughly with glass or wood rod. Don't use any metal for mixing or stirring; nor mix more Bleach-White than can be used in three hours; nor pour unused mixture back into either No. 1 or No. 2 solution; nor keep mixed solution in a closed container; nor store the material in warm places or in direct sunlight. Handle with rubber gloves.

Be sure the wood is sanded thoroughly and dusted before applying the bleaching solution.

Apply a full, wet coat with a small mop, clean soft rag, cotton waste, or brush. If the material is to be sprayed, use a glass container and wash out the spray gun with water immediately after using it.

When it is necessary to mask for bleaching, the procedure should be: First mask the part to be bleached; then stain and fill and apply sealer in usual manner to remainder of surface. Then remask over finished parts, bleach where necessary, and finish in usual way.

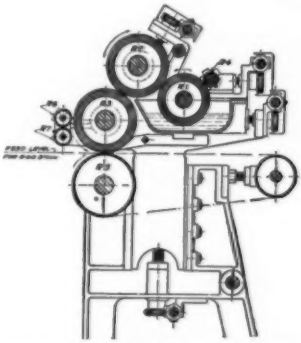
Roller Coating Machine for Sheet Stock

A machine wherein a uniform film of paint or other finishing material can be automatically applied to rigid or flexible sheet stock (flat or curved) has been developed by the Chas. E. Francis Co., Rushville, Ind. It is called the "Francis Model T-R Coating Machine." The arrangement of rolls provides for exceptionally close regulation.

Referring to the accompanying cross-sectional drawing, the fountain roll, *R1*, turns in a bath of paint, picking up an excessive amount. The doctor roll, *R4*, is adjusted to regulate the amount of paint on the fountain roll, to be carried to the transfer roll, *R2*. The transfer roll, coming in contact with the fountain roll, becomes coated and in turn coats the applying roll, *R3*.

All of the rolls are provided with accurate adjustment . . . . the adjustment between one pair does not interfere with that of any of the others; and setting the rolls for different thickness of materials to be coated does not interfere with the coating adjustment, as the whole group of rolls above the feed line is adjustable as a unit.

Rigid materials, such as plywood panels or sheet metal, are fed directly between the coating roll, *R3* and the feed roll, *R5*, but an extra pair of nip rolls, *R6* and *R7*, is furnished for thin flexible materials such as paper, leather and fabrics,



A cross-section view of the "roller" machine that coats flat sheet stock.

so that it is not necessary to adjust the nip between the regular feed roll and the coating roll so close that the feed roll or belt might become coated.

Rolls can be furnished in any metal, or covered with rubber, synthetic rubber, or gelatin for coating with paint, varnish, lacquer, enamel, or other materials. The direction of rotation of the transfer roll *R2* can be reversed so that a more varied degree of coating can be had.

A Beautiful Blonde

maple finish

Worth investigating! A new finish that brings out the full beauty of maple. Easily applied without exacting judgment or manipulation.

Simply apply one spray coat of L-Mac-E Blonde Maple Coating No. L-266. Allow 2 hours for drying, lightly sand with No. 5 or 6 paper. Next apply two or three coats of L-Mac-E water white lacquer. No. L-1032. Rub and wax with L-Mac-E blonde maple wax, No. 779. Write for sample panel or free working samples.

The Lawrence-McFadden Co.

1400 Frankford Ave., Philadelphia, Pa.
427 W. Erie Street, Chicago, Illinois

SILK SCREEN METHODS of REPRODUCTION

Fully Illustrated by the Author. Leatherette Binding. Size 5x7½ in. 193 Pages. 98 Illus...... **$3.00**

THIS new book is intended for Sign Painters, Card Writers, Display Men, Furniture Manufacturers, Novelty Manufacturers, Glass Etchers and For Domestic Use.

Every detail of the silk screen process is presented clearly in detail. All equipment is fully described and its use illustrated. All materials needed in the various kinds of silk screen work are mentioned with respect to their use to advantage. Estimates of costs and prices to charge are given.

Practical Publications, Inc.

222 East Ohio Street Indianapolis, Ind.

ANOTHER *Absolute*

TIME SAVER

Another revolutionary method for the furniture manufacturer has been developed by the W. P. C. research department. It eliminates the need for selected lumber to produce uniform finished cases. Is now being used in production by leading manufacturers.

ABSOLUTE EQUALIZER AND TONER

Will uniform all dark sap streaks in wood and produce a uniform finished case from *unmatched* lumber.

Does not contain dangerous caustic or bleach—It is not a paint—No special skill required to spray—Can not injure grain or texture—Gives the most desirable clear transparent fast-to-light finish.

All light woods may be equalized to any other. All dark woods may be made to match.

Reduces material cost and lost time in cabinet room.

Please address all inquiries To Winston-Salem Office.

Woodfinishing Products Co.

The only manufacturers of *Absolute* Products

34-38 Industrial St. New York, N. Y.

572 Waughtown St. Winston-Salem, N. C.

Flat Varnish

The Marietta Paint & Color Co., Marietta, Ohio, announces an improved type of flat varnish having these features:

1) Has new flatting compound; no metallic soaps used. 2) Does not skin over. 3) Dries to a hard tough film that doesn't become brittle. 4) Is clear and free from gray smoky appearance. 5) Can be rubbed on the day following application. 6) Is alcohol proof, waterproof, print proof. 7) Is available in any desired luster.

High Heat White Doesn't Discolor

The North Bergen Varnish Corp., 1001 39th St., North Bergen, N. J., announces a new high-heat white coating that doesn't discolor at temperatures as high as 280°F. for 60 minutes. According to the company, this material was first developed for a metal decorating firm that had a difficult baking cycle.

Sample screw caps, finished in this white, include one that was: 1) sized, coated and baked at 240°F. for 30 minutes; 2) printed and baked at 270°F. for 30 minutes, then varnished and fabricated; 3) baked at 280°F. for one hour to vulcanize the latex gasket.

The Berco high-heat white coating is claimed to work well on all deep draw work because of its excellent adhesive qualities. It will stand repeated bakes, and will not fracture in fabrication.

Twin-Jet Air Cap

The DeVilbiss Co., Toledo, Ohio, announces the development of a new twin-jet type suction-feed air cap, No. 37, for use on their type CL paint-spray gun. The Type CL is a small, light-weight gun recommended for medium requirements in

product finishing, automobile and furniture refinishing, and other painting and finishing requirements where a standard production gun is not needed.

The new cap is specially designed for use in the higher range of air pressures. It is not intended to replace the No. 39 air cap, which is available for use for pressure up to 55-lbs., but is recommended for pressures ranging from 45 to 75-lbs.

With the development of this new cap, the usefulness of the Type CL gun in the application of synthetics is increased. It makes possible the use of higher pressures necessary to produce the fine atomization requisite to good results with these materials.

Enamel Finish for Die Castings

The difficult problem of developing an enamel finish that will adhere tenaciously and continuously to zinc has been successfully solved by Maas & Waldstein Co., makers of lacquers and lacquer enamels, Newark, New Jersey, according to an announcement by that company.

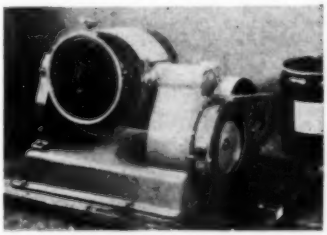
As a result of their research work, M. & W. are now placing on the market a new line of air-drying lacquer enamels which are especially designed for finishing zinc and aluminum die castings.

These new die-casting lacquer enamels produce an excellent, durable, elastic finish in one coat. They are supplied in gloss and egg-shell sheens and in white, black, and 32 standard shades. Special colors can be supplied when desired.

"Ti-Pure," Titanium Dioxide

"Ti-Pure" is the new trade name chosen by the Krebs Pigment & Color Corporation to identify Krebs titanium dioxide. This product is offered in three grades: FF—medium oil absorption; LO—low oil absorption, and LW—water dispersion grade.

Rejuvenates 5-gal. cans of Paint, etc., in 3 to 10 minutes without opening the can



No matter how much or how long finishing materials have settled, from lack of use, the "Miracle" will restore them to their original consistence in a few minutes. Noiseless in operation—clean to use. Smaller machines for smaller cans also available.

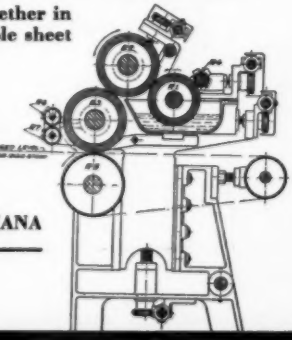
Miracle Paint Rejuvenator Co., Inc.
459 Robert Street St. Paul, Minn.

. . . for coating any flat surfaced material, whether in form of a heavy, stiff board or a light, flexible sheet

The New Francis Model T-R

COATING MACHINE

This machine is fitted with Metal, Rubber, Composition, or whatever kind of Rolls are required, and provision is made for quick change from one kind of Roll to another. It will spread, uniformly—varnish, paint, adhesive, etc., on metal, wood, paper, leather, cloth, and other materials.



CHAS. E. FRANCIS CO., RUSHVILLE, INDIANA

Letters from I. F. Readers

(Continued from page 7)

coatings for signs and other work. I would, therefore, like to have you give me the names and addresses of one or two reliable sources of supply for these solvents.

I gather from your article that you have had rather extensive experience in the handling of these materials and I would, therefore, ask further whether you are in position to advise us in the selection and use of these materials.—G. R. Mfg. Co. (Advertising Specialties).

Novelty Finishes for Advertising Car

I am looking for information regarding the correct materials to use on my advertising car and my exhibition case which are used in the show business.

Is it practical to cement to wood or masonite, foil like samples [paper backed tin or lead foil] and cover with clear varnishes where the work is to be exposed to the elements? Where can such foils be obtained?

The car is to have horns and ornaments composed of such materials as metal, plywood, masonite, composition of glue and sawdust and of wood flour, fiber, sawdust and water-soluble latex, which when the water evaporates is insoluble in water. This latter material is somewhat flexible.

I wish to make the outfit very flashy. Advice as to colors, metallic colors, means of using silver leaf or chromium leaf, the foils like sample, and any other suggestions are desired. Is there a way of plating the composition ornaments with bright metal? What about the device which uses a blast of air and gas to melt a wire of the desired metal and blow it in a spray onto the article?

To place advertising matter on a lacquered panel I want a paint that will stand rain and a short time exposure to weather, and which can be removed by application of gasoline or any other material that will not affect the lacquer or similar finish.—W. S. C.

Chemicals from Belgium

We herewith beg to inquire whether you or your service department would be in a position to help us in the development of our trade with the U. S. A. For your information we wish to state that we are exporters and importers of raw materials and chemicals, catering direct to the Paint & Varnish Industry.

Would you be able to put us into connection with: 1) Industries direct; 2) Importers; 3) Agents—all of the above mentioned line?

We take the liberty to enclose herewith a few lists of the various articles we handle for export to the United States. Of course, we understand that our inquiry is rather wide, but the reason for approaching you is as follows: We intend to visit the U. S. A. in the fall—perhaps it is about September — and would already like to be in contact with a few American firms before

Imperious Requirement of Furniture Manufacturers

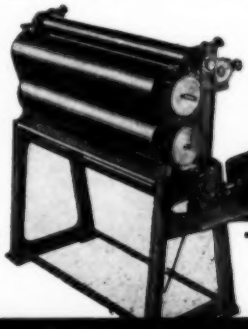
BLANCHIT - BLONDE
Authoritative Modern

BLANCHIT
Reg. U. S. Pat. Off.

Made by L. R. VAN ALLEN & CO.
CHICAGO

Faster — Better — Economical

Provides more uniform application of lacquers, enamels, varnishes, etc., on any sheet or strip material with greater coverage per gallon and insures faster production with less material waste.



Get further details about this improved roller-coater . . also consult us for silk screen process equipment, paste paint, etc.

NAZ-DAR COMPANY
4014 N. Rockwell St.
Chicago, Ill.

making the proposed visit. Anything you do for us along the above line would be greatly appreciated, and if you have any suggestion to make in this connection we shall be very pleased to hear from you.—W. LOEWENTHAL; 64, Longue Rue Neuve, Antwerp, BELGIUM.

Spraying Drums

We read with interest your publication INDUSTRIAL FINISHING for February, 1936, and would be glad to receive this and any other literature of the same nature which you publish, regularly. We shall be glad to know if you are aware of any developments in the United States in the direction of the automatic spraying of steel barrels, as we are at present endeavoring to install such equipment in our factory here. — Metal Containers Ltd., Cheshire, ENGLAND.

Who Sells "Plextol-a"?

We have a request in our Buyers' Service Department for a plasticiser called "Plextol-a" — probably made of rosin or resin. Do you know who manufactures it?—N. R. Co.

Tumbling Barrels

Please send us the names of several concerns who manufacture barrels for finishing small metal parts in baking enamel. We have written to the Leon J. Barrett Co. at Worcester, Mass., having seen their advertisement in the April 1936 issue of INDUSTRIAL FINISHING. No doubt there are some concerns nearby (State of Illinois) who make similar equipment. We will appreciate this cooperation. — R. L. T. (Lockers, Cabinets and Metal Equipment).

Rollacoat Slat Finisher

In February issue of INDUSTRIAL FINISHING, on page 46, you show a cut and give a description of Rollacoat Slat Finisher for coating paint on Venetian blinds. We are interested in a machine of this kind to coat Venetian blinds and would appreciate if you will give us the name of the manufacturer of this machine, as well as other machines for a similar purpose.—B. W. T. Co. ("We Screen the Best Homes in the Land").

In Volume XII, issue No. 4, of INDUSTRIAL FINISHING, dated Febru-

AMAZING

RESULTS WITH

SPRUANCE QUALITY

LACQUER

SEALER

Thoroughly seals the pores of the wood and has the build on which the finest of finishes are produced. Dries quickly and sands easily without gumming. Leading furniture manufacturers are standardizing on this unusual sealer.

Write now for samples and full information.

SPRUANCE QUALITY

Specialists in the manufacture of wood and metal finishing products, Varnishes, Lacquers and Enamels since 1907.

The Gilbert Spruance Co.

RICHMOND & TIOGA STS.

PHILADELPHIA, PA.

ary 1936, page 46, we find an article on "Rollacoate Slat Finisher" which we believe we can use to advantage and would like to know the name and address of the manufacturer so that we can contact him.—E. Refrigerator Corp.

Black Finish

We are interested in obtaining a method for putting a black finish on an article made of galvanized iron with soldered joints. I feel quite sure that I have seen a method for doing this in INDUSTRIAL FINISHING magazine, and would appreciate any information you might give me on such a finish. This finish can be either a dull or a bright black. We can use an oxidized finish or an applied finish.—L. C. Co. (Brass Furniture Trimmings).

New Copper Paint Developed

You may recall that some time ago I sent you an inquiry regarding the source of supply for pure copper powders. I am pleased to let you know that one of the concerns to whom you referred me has been real helpful . . . . and was able to furnish me with the exact material I had in mind. Using this copper powder in conjunction with a bituminous-base vehicle, and adding some essential oils of a similar nature, I have created a copper paint which, for protection against sea water and atmospheric deterioration, and against the ravages of the pernicious boring of teredo, limnoria and other marine pests, far exceeds any other product on the market at this time.

Tests being conducted at the present time seem to indicate that it will act as a deterrent against barnacles, perhaps eliminating the clinging of this pest entirely.

Because so many so-called protective coatings fail in the final analysis, I have made exhaustive practical tests, and the results have made me highly enthusiastic regarding the worthiness of this product. I have protected it by trademark copyright, etc., and have started to form a company for its manufacture and sale. I have in mind direct selling—never through dealers—in order to protect the purchaser from an inferior or adulterated mixture.

This paint will be marketed under the trade name "Coppr-Black." It was primarily developed for wood boat bottoms . . . . is an ideal protective coating for any wood or metal marine structures, piling, fences or building timbers — under ground, under water or exposed to the atmosphere.

Immediately upon completion of incorporation I shall advertise this product in INDUSTRIAL FINISHING. Meanwhile I shall appreciate your directing any inquiries regarding the purchase or use of a paint of this nature to me, as I have an introductory quantity for sale in quarts, one-gallon pails and 5-gallon pails.

The formula cannot be analyzed as the main essential oils become part of the vehicle and cannot be isolated, so while my product may be imitated, I am confident "Coppr-Black" will remain in the lead of any similar paint for a long time. . . . . —GEORGE A. ENDOM.

For Over 40 Years
Manufacturing Quality
GOLD and SILVER
Colored Bronze Powder
Write for our booklet—"The Why and How of Bronze Powder"
The O. Hommel Co., Inc.
Pittsburgh, Pa.

Graining Paper

In the June issue of INDUSTRIAL FINISHING, we observe an article on graining by J. K. Cooper. This article relates to the use of transfer graining paper. Occasionally we have a job of metal-covered doors which we are supposed to finish in imitation wood. We are interested in this article and would like to inquire where this graining paper can be obtained. Perhaps you can give us the names and addresses of one or more manufacturers. — M. Mfg. Co. (Metal Covered Doors and Trim).

We noticed an article in June INDUSTRIAL FINISHING, page 34, on wood graining, using graining paper. Can you advise us where we can purchase this graining paper? —S. Casket Co.

Synthetic Bake-Enamels for Hospital Furniture

(Continued from page 46)

thetic enamels, properly applied and baked, resist this test.

c) Chemical resistance: Direct

immersion in 5% solutions of NaOH (sodium hydroxide) for periods of 24 hours will test the general resistance of a finish to corrosive agents. Baked synthetic enamel finishes will withstand repeated washings with strong soaps and cleansing agents—a very important test for hospital equipment. These enamels are also resistant to various fumes, gases and liquids.

d) Elasticity and toughness: This test is made by repeatedly bending a finished sample sheet of metal over a ⅝-in. mandrel. It is of importance in finishes for hospital equipment since there are likely to occur many repeated contacts, such as would occur from dropping surgical instruments on table or desk tops, or bumping into cabinets or tables with chairs or the hospital cart.

S. M. Wells Jr. Joins Thomson Wood Finishing Co.

Mr. Steven M. Wells, Jr., formerly with Valentine & Co. of New York, N. Y., has recently been appointed manager of trade sales for the Thomson Wood Finishing Co. of Philadelphia. Mr. Wells is well known in the trade sales field and many of his friends will be interested to hear of his new connection.

Spray-Painting School

The DeVilbiss Co., Toledo, Ohio, announces the schedule of their training school for the last half of 1936. This school is open to industrial painters, master painters, automobile refinishers, and all others interested in learning the technique of spray-painting and the use and care of spray-painting equipment.

The training period lasts for one week. Classes will start on the following dates: July 6, August 3, August 31, October 5, November 2, November 30.

Special rates in Toledo hotels and boarding houses near the plant have been secured by the company for men attending the school.

These classes have been well attended in the past because of the facilities for study, otherwise unobtainable, offered by The DeVilbiss Laboratories.

It is advisable to enroll in the school as far in advance as possible, since the size of the classes must be limited, and since there will be no training periods other than those announced.

"Detrex" Degreasing Machines

The Detroit Rex Products Co., Detroit, Mich., announces registration of the trade name "Detrex," in U. S. Patent Office. This name is applied to a line of degreasing machines in which "Perm-A-Clor" or "Triad" stabilized chlorinated solvents are used.

Detrex Degreasing Machines are made in a large variety of sizes and are widely used in the metal-working industries to remove grease, oil, buffing compounds, etc., previous to plating, enameling, painting, lacquering, japaning and other finishing operations.

Industrial FINISHING

Distributed to Executives and Foremen Finishers in industrial plants where finishing coats are applied with finishing equipment

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EDITORIAL

Paint, Varnish and Lacquer Sales Greater by Nearly $5,000,000

The U. S. Department of Commerce figures on total trade sales, plus industrial sales, plus unclassified sales of paint, varnish, lacquers and fillers for June 1936 (released August 3) show that the total sales for the peak month of May were nearly $5,000,000 greater than for the same peak month (May) in 1935. This report is compiled from sales reported by 579 manufacturers of these materials.

In round figures, trade sales accounted for 1½ million of the gain, industrial sales more than two million, and unclassified sales 1¼ million. The gain of sales in May 1935 over May 1934 was more than $3,000,000.

Well Informed Salesmen, Welcome in Factories

With possibly few exceptions, the really well informed salesman who happens to be blessed with a pleasing personality and reasonable tact, is a welcome visitor in industrial establishments, particularly in the small and medium size plants. Why? Because he has uptodate practical information not only on what he's selling but on the type of materials, supplies and equipment available for use in departments of the plant for which his products are intended.

If his goods fit into the finishing departments of woodworking plants, for example, he is or should be reasonably familiar with all phases of wood finishing, including the latest materials, methods, supplies and equipment available and in service in other factories. If he calls on factories that do metal cleaning and metal finishing, he will know what's going on in the best establishments in that line. As a result, he can help with sound advice and give suggestions about various problems that occur in the finishing departments of his present and prospective customers.

It is regretable that more salesmen of finishing materials and supplies are not better informed

about what goes on in the departments of factories where their products are used or could be used. More salesmen should realize the value of becoming so intensely interested in the lines of work in which their products are used, that they will gain the reputation of being authorities on certain types of finishing. It will add much to the enjoyment and value they get out of their work, and it will gain them easy entree into many more establishments and into more executive offices.

Many a good account has been landed and held through the salesman's knowledge of practical finishing and his ability to help solve some company's problem. This is an important point to be kept in mind by three classes of people, namely the employers of finishing salesmen, the salesmen themselves, and the executive personnel upon whom these salesmen call in their regular line of work.

More Prosperous Years Ahead

While many of us discount business forecasts, everyone is curious to find out what some reputable and successful business firm is evidently believing and planning for the future. In this connection we are tempted to quote something we read in the magazine Tide (of advertising and marketing) for August 1936.

In a news article about the new catalogs going out from the world's leading mail-order houses, Tide indicates that "one of the big mail-order chain-store houses (Sears or Ward, probably) has indulged in some cyrstal-gazing" . . . . and "it saw things pretty clearly up to 1942."

Specifically, "they picked next year as the first real year of recovery, bringing along with it an upping in durable goods, the fruition of the building boom and widespread inflation. 1938 will be a year of consolidation, showing only a slight rise over 1937. The peak year, they figure, will come in 1939—'a new high plateau of business, at which stocks will be double 1935 levels, commodity prices at the peak, and the public debt at 36 to 40 billions'.

"For 1941, they envision a slight decrease in industrial activity and, in the last half of the year, the full flowering of the real estate boom. But when it comes to 1942 they admit they can't be sure. . . .

"For the immediate present, they see the best summer retail trade since 1929, even allowing for the drought. Farm income, they say, is 6.7% higher than last year; and there are, in addition, the factors of the bonus, higher industrial payrolls, the spread of installment buying. They explain it thus:

" 'The performance of industry and trade during the past two months in the face of many uncertainties, foreign and domestic, has been a strong testimonial to the potency and momentum of the fundamental forces making for cyclical recovery.'

"Of course, no body can dope things out six years in advance with anything like complete accuracy. But a mail order house has to plan far ahead and do it accurately, if it wants to stay in business; they must buy merchandise months before they issue their catalog to sell for six months after the catalog's out.

"Thus, the prophecy . . . . is not without its significance."

New at Finishing

Straws in the wind indicate that a number of concerns which have been letting out on contract, part or all of their manufacturing work, including finishing, are going to make arrangements to do more of this work themselves.

They are inquiring about equipment, methods and materials. Their reasons for taking over complete production themselves include:

1) Higher prices are being demanded by the firms manufacturing and finishing parts on contract, due probably to the fact that those firms have a considerably greater volume of work to handle.

2) Greater confidence that prosperity is returning and that it will be a safe venture to make the investment in equipment and manufacturing floor space.

3) The desire to have more complete control of the production of goods they are assembling and marketing.

4) The desire to take the profit of production themselves, now that prices are such that manufacturing is really profitable.

Concerns taking this step will make up for their lack of experience by seeking all available information and obtaining the latest equipment, methods and materials to start with. They may make mistakes, waste some material, and have some high costs at first, but they will be more likely to show progress than some of the older concerns coasting along easily on an "as is" basis.

"Prep-Sol" for Refinishers

A new trade name, "Prep-Sol," has been chosen to identify the du Pont product formerly known as Sol-Kleen . . . for use by refinishers of automobiles to clean and prepare old lacquer and synthetic finishes for recoloring with new finishes.

Bakelite Adds to Laboratory Staff

Mr. K. V. McCullough, recently with the Certain-teed Products Corporation of St. Louis, and former secretary of the St. Louis Paint and Varnish Production Club, has joined the Paint and Varnish Development Laboratories of the Bakelite Corporation at Bloomfield, N. J. Previously, he was with the Illinois Paint and Varnish Works and the American Asphalt Paint Co. Mr. McCullough is a graduate of North Dakota State College, Fargo, N. D., where he specialized in paint and varnish technology.

Explosion-Proof Gear Motors

A new line of single reduction explosion-proof gear-motors ranging from 1½ to 75-h.p. have been announced recently by the Westinghouse Electric and Mfg. Co. They are inspected and approved by the National Board of Fire Underwriters for use in hazardous atmospheres containing gasoline vapors and other gases or vapors having equivalent or less hazard, such as petroleum products, ethyl alcohol, methyl alcohol, acetone, and lacquers, solvent vapors.

Blast Cleaning Catalog

A new quick-reference thumb-indexed catalog describing equipment and methods for modern blast-cleaning (formerly called sandblasting) has been issued by the Pangborn Corp., Hagerstown, Md. It contains many interesting halftone cuts of various blast-cleaning installations in industry . . . . it includes both

airless and airblast equipment. Material in the catalog is condensed into 16 pages 8x9-in. and divided into the following sections: Dust Collectors, Airless Rotoblast, Blast Machines & Separators, Blast Rooms, Blast Barrels, Blast Tables & Casting Washer, Blast Cabinets & Accessories.

Wood Finish Catalog

A 44-page (3¾x6-in.) catalog and price list of wood finishing materials and supplies (color kits, wipe-on finish, amalgamator, stick shellac, cement, porcelain repair material, remover, solvents, lacquer, varnish, stains, sealers, fillers, polishes, waxes, rottenstone, colors in oil, colors in japan, rubbing felt, sandpaper, pumice stone, patching outfits, etc.), has just been issued by the Star Chemical Co., Inc., 2800 S. Crawford Ave., Chicago, Ill. The catalog should be in every finisher's and refinisher's desk or reference file.

Classified Advertising

Advertisements under this heading 45 cents a line per insertion, minimum charge, $1.35. In estimating, calculate six words to one line, and add one additional line for heading. Use this department to obtain help, find positions, buy and sell equipment, dispose of manufacturing properties, etc.

FOREMAN FINISHER

Wishes to make a change. Several years' experience as foreman in production shops and as service man for varnish companies. Will furnish reference from present employers. Address IF-625, care Industrial Finishing.

FINISHING ENGINEER

Desires position, preferably in small city or town in Pennsylvania, Maryland or New Jersey. Thoroughly experienced in all branches of organic finishing, finish development, technical testing and laboratory control. Have engineering degree; can estimate costs, direct finish room or laboratory, finish own models or samples and design test equipment. Address IF-620, care Industrial Finishing.

SALESMAN—

Experienced in selling Synthetic Enamels, Lacquers, etc., for industrial use, and desiring connection with first-class manufacturer, is invited to apply. Opening in middle-western state. Address IF-622, care Industrial Finishing.

SALESMAN WANTED.

A large and established manufacturer of industrial lacquers, paints and enamels for product finishing has opening in Eastern Pennsylvania for an experienced salesman. Salary and commission. State age, references and experience in detail. Address IF-621, care Industrial Finishing.

OLD ESTABLISHED HOUSE

Wants highest grade industrial salesman to specialize in and present proven synthetic line. Must have thorough acquaintance with such potential consumers in either Wisconsin or Indiana. In replying state full particulars as to qualifications. Address IF-623, care Industrial Finishing.

SALESMAN WITH EXPERIENCE

In sales of industrial lacquers and synthetic enamels, well-known company. Territory West Jersey and Eastern Pennsylvania. Salary plus. Give full details in first letter. TECHNICAL SERVICE AGENCY, Inc., 217 Broadway, New York.

CHEMIST WANTED

Experienced in formulating wood and metal finishes by established Eastern manufacturer of lacquers and paint products for industrial use. State age, salary, references and experience in detail. Address IF-624, care Industrial Finishing.

REQUIRED . . . .

Volume I of "Industrial Finishing," either bound or loose. Please state price. Write Box ZN422, DEACON'S ADVERTISING AGENCY, St. Mary Axe, London.

THE ALEXANDER MILBURN CO.

Paint Spray Equipment, Standardized Cutting and Welding Apparatus and Portable Carbide Lamps. Write for Catalog.

1406 W. Baltimore st.,
Baltimore, Md.

FOR SALE

Will sacrifice for prompt sale complete shellac cutting equipment including 3, 450-gallon agitator tanks, shellac loader, De Laval clarifier, pumps, can filling machine, belting, shafting, motor, etc. Photograph on request. Address IF-618, care Industrial Finishing.

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Zapon Co., The 2

25% SAVINGS

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